LASELLS STEWART CENTER MECHANICAL & ROOF RENEWAL

EXHIBIT H - DRAWINGS

Oregon State University

Construction Contracts Administration
Oregon State University
644 SW 13th Ave.
Corvallis, Oregon 97333

PN# 2240-21

LASELLS STEWART CENTER

OREGON STATE UNIVERSITY

MECH AND ROOF RENEWAL - PERMIT SET

PROJECT ADDRESS: LASELLS STEWART CENTER
875 SW 26TH ST
CORVALLIS, OR 97331

OWNER: OREGON STATE UNIVERSITY
CAPITAL PLANNING & DEVELOPMENT
850 SW 35TH STREET
CORVALLIS, OR 97333
CONTACT: JULIE DROLET
T: 503-313-8401

ARCHITECT OF RECORD: BASSETTI ARCHITECTS
721 NW 9TH AVE #350
PORTLAND, OR 97209
CONTACT: JOE ECHEVERRI
T: 503-224-9162
E: JECHEVERRI@BASSETTIARCH.COM

PERMIT NO.: TBD

SEPARATE PERMITS: TBD

DEFERRED SUBMITTALS:
1. GLUE-LAMINATED MEMBERS (EQUIPMENT CURBS)
2. NON-STRUCTURAL COLD FORMED METAL FRAMING
3. METAL WALL PANEL CLADDING ATTACHMENT
4. ROOF TOP METAL STAIRS, LADDERS, AND RAILINGS
5. MEP/F EQUIPMENT ANCHORAGE AND BRACING
6. ROOF TIE OFF ANCHORS
7. CEILING ANCHORAGE AND BRACING
8. SKYLIGHT ASSEMBLY
9. FIRESTOP ASSEMBLIES
10. FACILITY FALL PROTECTION, LAYOUT AND ANCHORAGE

SCOPE OF WORK: EXISTING BUILDNG MECHANICAL AND ROOF REPLACEMENT PROJECT.
INSTALL NEW FALL PROTECTION AND FALL RESTRAINT SYSTEM.
REMOVE AND REPLACE INTERIOR CEILING AND LIGHTING WITHIN DESIGNATED WORK AREAS.

BUILDING SHALL BE OCCUPIED AND OPERATIONAL DURING CONSTRUCTION.

PROJECT WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSU CONSTRUCTION STANDARDS AS UPDATED 02/11/2020.

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bassetti architects

721 NW 9th Ave, Suite 350
Portland, Oregon 97209
T (503) 224 9162
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
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Portland, OR 97204
T (503) 227 3251

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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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REVISIONS DATE

Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2021

Jurisdiction Stamp Area

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REGISTERED ARCHITECT
JOSEPH ECHEVERRI
04/30/22
PORTLAND, OREGON
STATE OF OREGON

02/17/2022 5:30:32 PM

COVER SHEET

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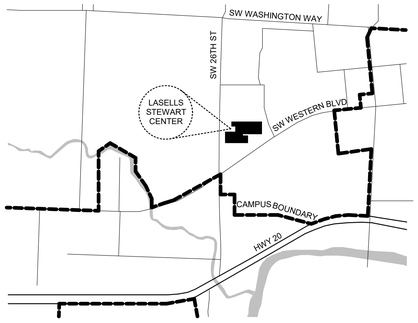
VICINITY MAP



GENERAL NOTES

1. CONTRACT DOCUMENTS INCLUDE THE DRAWINGS AND SPECIFICATIONS. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THE CONTRACT DOCUMENTS INTO THE SHOP DRAWINGS AND WORK AS REQUIRED BY THE GENERAL CONDITIONS.
2. VERIFY AND COORDINATE SITE CONDITIONS, EXISTING BUILDING CONDITIONS, AND DIMENSIONS. BRING INCONSISTENCIES TO ATTENTION OF ARCHITECT BEFORE PROCEEDING WITH WORK.
3. KEEP DRIVEWAYS, LOADING AREAS, AND ENTRANCES SERVING PREMISES CLEAR AND AVAILABLE TO OWNER, OWNER'S EMPLOYEES, AND EMERGENCY VEHICLES AT ALL TIMES. DO NOT USE THESE AREAS FOR PARKING OR FOR STORAGE OF MATERIALS.
   SCHEDULE DELIVERIES TO MINIMIZE USE OF DRIVEWAYS AND ENTRANCES BY CONSTRUCTION OPERATIONS.
   SCHEDULE DELIVERIES TO MINIMIZE SPACE AND TIME REQUIREMENTS FOR STORAGE OF MATERIALS AND EQUIPMENT ON-SITE.
4. ALL ITEMS SALVAGED TO BE REINSTALLED SHALL BE HANDLED AND STORED WITH CARE TO ENSURE NO DAMAGES.
5. DO NOT SCALE DRAWINGS. COORDINATE DIMENSIONS SHOWN ON DRAWINGS WITH ACTUAL FIELD MEASUREMENTS. NOTIFY ARCHITECT OF DISCREPANCIES.
6. ALL DIMENSIONS ARE TO FACE OF FINISH, FACE OF CONCRETE AND NOMINAL FACE OF MASONRY, AND CENTERLINE OF COLUMNS, UNLESS NOTED OTHERWISE.
7. WORK INSTALLED IN CONFLICT WITH CONSTRUCTION DOCUMENTS WILL BE CONSIDERED IN NON-CONFORMANCE AND SHALL BE CORRECTED AT NO EXPENSE TO OWNER OR ARCHITECT.
8. COORDINATION: COORDINATE WORK TO COMPLY WITH DRAWINGS AND SPECIFICATIONS, INCLUDING STRUCTURAL, MECHANICAL, PLUMBING, SPRINKLER, ELECTRICAL, EQUIPMENT AND OTHER CONSTRUCTION.
9. FOLLOW MANUFACTURER'S INSTRUCTIONS, EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE INDICATED OR REQUIRED BY CONSTRUCTION DOCUMENTS OR APPLICABLE CODES, ORDINANCES AND REGULATIONS.
10. WHERE ELECTRICAL WORK OCCURS IN SOUND RATED WALL, FLOOR OR CEILING ASSEMBLIES, THE WORK SHALL BE INCORPERATE INSULATION AND ISOLATION OF DEVICES. SOUND RATED WALL PERFORMANCE SHALL NOT BE REDUCED DUE TO WORK.
11. LOCATION OF PENETRATIONS AND PATHS FOR EQUIPMENTS, PIPES AND CONDUITS BETWEEN PLUMBING, MECHANICAL, STRUCTURAL AND FIRE SHALL BE FIRE-STOPPED AND ACOUSTICALLY SEALED WHEN PENETRATING CEILINGS, WALLS AND ROOFS.
12. PLACEMENT OF EQUIPMENT WITH CONNECTING PIPES, CONDUITS, DUCTS SHALL BE LOCATED TO PROVIDE MINIMUM CLEARANCES AND ACCESS TO EQUIPMENT PER OWNER CONSTRUCTION STANDARDS.
13. FINISHES: NO EXPOSED PIPE, CONDUITS, DUCTS, VENTS, ETC. UNLESS NOTED OTHERWISE, CONCEAL UTILITY LINES BEHIND FINISHED CONSTRUCTION UNLESS NOTED AS EXPOSED CONSTRUCTION ON DRAWINGS OR APPROVED BY ARCHITECT. IF AFOREMENTIONED WORK CANNOT BE CONCEALED WITHIN FINISHED CONSTRUCTION OF THE CONTRACT DOCUMENTS THE CONTRACTOR SHALL PROVIDE & INSTALL FURRED & FINISHED HORIZONTAL & VERTICAL CHASES TO MATCH ADJACENT FINISH TO CONCEAL WORK, COORDINATE WITH ARCHITECT.
14. PROVIDE GALVANIC ISOLATION BETWEEN DISSIMILAR METALS.
15. FIRE PROTECTION DRAWINGS SHALL BE PROVIDED TO ARCHITECT FOR REVIEW WITH DESIGN INTENT AND PRIOR TO SUBMITTING TO FIRE DEPARTMENT REVIEW FOR PERMIT.
16. EXISTING FIRE PROTECTION SYSTEM SHALL BE PROTECTED IN PLACE DURING WORK AND MODIFICATIONS TO SYSTEM. DO NOT DRAIN WATER ACROSS SIDEWALK OR OTHER CONCRETE SURFACES.
17. COORDINATE MODIFICATIONS OF FIRE PROTECTION SYSTEM WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND OTHER WORK TO ENSURE NO CONFLICT AS A RESULT OF FIRE PROTECTION SYSTEM MODIFICATIONS TO HEADS.
18. COMPLY WITH OWNER, STATE AND LOCAL REQUIREMENTS FOR COVID-19 PROCEDURES AND SCREENING OF CONTRACTOR PERSONNEL WORKING ON PROJECT SITE.
    - MAINTAIN CONTRACT TRACING LOG.
    - TEMPERATURE CHECKS PRIOR TO SITE ENTRY.
    - CONTINUAL DESINFECTING OF HIGH USE AREAS, INCLUDING TOILET FACILITIES, DOORS, AND HANDRAILS.
    - INCREASED CLEANING OF CREW SHACKS AND LUNCH AREAS.
    - ADDITIONAL TOILET AND HAND-WASHING FACILITIES.
    - DISINFECTING OF TOOLS AND EQUIPMENT BEFORE AND AFTER SHIFTS OR WHEN TRANSFERRING BETWEEN INDIVIDUALS.
    - MANDATORY SOCIAL DISTANCING AND APPROPRIATE FACE COVERINGS REQUIRED CONTINUALLY ON SITE.

PROJECT DATA

TAX PARCEL NO: N/A

LEGAL DESCRIPTION: 875 SW 26TH STREET, CORVALLIS, OREGON 97331

JURISDICTION: CITY OF CORVALLIS, DEPT. OF DEVELOPMENT SERVICES

CODES:
EXISTING 1979 UNIFORM BUILDING CODE WITH OREGON AMENDMENTS

PROPOSED
2019 OSSC CHAPTER 34 EXISTING BUILDINGS
2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC), eff. date 10/01/2019
2021 OREGON ENERGY EFFICIENCY SPECIALTY CODE (OEESC), eff. date 10/01/2021
ASHRAE STANDARD 90.1-2019
2019 OREGON MECHANICAL SPECIALITY CODE (OMSC), eff. date 10/01/2019
2021 OREGON PLUMBING SPECIALTY CODE (OPSC) based on 2021 UPC, eff. date 04/01/2021
2021 OREGON ELECTRICAL SPECIALTY CODE (OESC) based on 2021 NEC, eff. date 04/01/2021
2019 OREGON FIRE CODE (OFC) based on 2018 IFC, eff. date 11/15/2019

OSU STANDARDS: OSU CONSTRUCTION STANDARDS, eff. date 02/11/2020

WORK AREA: OSSC 3407. ALTERATIONS - LEVEL 1
MECHANICAL EQUIPMENT REPLACE (SELECT FIXTURES)
WORK AREA OF EXISTING BUILDING ROOF: 35,868 SF
WORK AREA OF EXISTING CEILING REPLACEMENT: 16,000 SF

BUILDING AREA:
EXISTING 41,365 SF
PROPOSED NO CHANGE

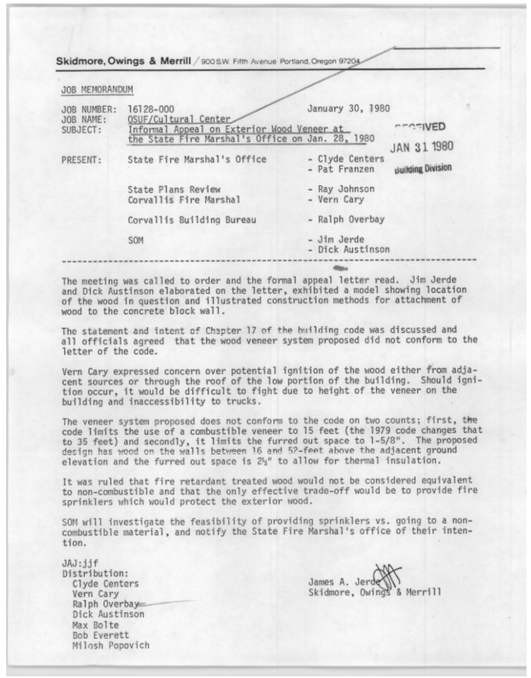
CONSTRUCTION TYPE:
EXISTING AUDITORIUM: TYPE III-1 HR
MAIN: V-1-HR WITH SPRINKLER SUBSTITUTION FOR 1 HR RATING
PROPOSED NO CHANGE

OCCUPANCY GROUP:
EXISTING A2.1
PROPOSED NO CHANGE

BUILDING HEIGHT:
EXISTING 65 FT ALLOWED/ 55'-4" TOP OF AUDITORIUM WALL. NOTE: TOP OF PLENUM 59'-4"
50 FT ALLOWED/ 16'-0" TOP OF MAIN BLDG WALL
PROPOSED 57'-2" TOP OF AUDITORIUM WALL
17'-10" TOP OF MAIN BLDG WALL

LETTER OF RECORD - SPRINKLER COVERAGE

NOTE: LETTER OF RECORD DATED JANUARY 30, 1980 INDICATING EXISTING CONDITION OF SPRINKLER COVERAGE OF EXTERIOR WOOD SIDING. PROJECT WORK PROPOSES REMOVAL OF EXISTING WOOD SIDING AND REPLACING WITH NON-COMBUSTIBLE METAL SIDING. MODIFICATION OF SPRINKLER COVERAGE PER DELEGATED DESIGN.



Skidmore, Owings & Merrill / 900 S.W. Fifth Avenue Portland, Oregon 97204

JOB MEMORANDUM

JOB NUMBER: 16128-000 — January 30, 1980
JOB NAME: OSUF/Cultural Center
SUBJECT: Informal Appeal on Exterior Wood Veneer at the State Fire Marshal's Office on Jan. 28, 1980

RECEIVED JAN 31 1980 Building Division

PRESENT:
State Fire Marshal's Office - Clyde Centers, - Pat Franzen
State Plans Review - Ray Johnson
Corvallis Fire Marshal - Vern Cary
Corvallis Building Bureau - Ralph Overbay
SOM - Jim Jerde, - Dick Austinson

The meeting was called to order and the formal appeal letter read. Jim Jerde and Dick Austinson elaborated on the letter, exhibited a model showing location of the wood in question and illustrated construction methods for attachment of wood to the concrete block wall.

The statement and intent of Chapter 17 of the building code was discussed and all officials agreed that the wood veneer system proposed did not conform to the letter of the code.

Vern Cary expressed concern over potential ignition of the wood either from adjacent sources or through the roof of the low portion of the building. Should ignition occur, it would be difficult to fight due to height of the veneer on the building and inaccessibility to trucks.

The veneer system proposed does not conform to the code on two counts; first, the code limits the use of a combustible veneer to 15 feet (the 1979 code changes that to 35 feet) and secondly, it limits the furred out space to 1-5/8". The proposed design has wood on the walls between 16 and 52 feet above the adjacent ground elevation and the furred out space is 2½" to allow for thermal insulation.

It was ruled that fire retardant treated wood would not be considered equivalent to non-combustible and that the only effective trade-off would be to provide fire sprinklers which would protect the exterior wood.

SOM will investigate the feasibility of providing sprinklers vs. going to a non-combustible material, and notify the State Fire Marshal's office of their intention.

JAJ:jjf
Distribution:
Clyde Centers
Vern Cary
Ralph Overbay
Dick Austinson
Max Bolte
Bob Everett
Milosh Popovich

James A. Jerde
Skidmore, Owings & Merrill

GRAPHIC SYMBOLS

BUILDING ELEVATION
ELEVATION ID
1 / A3.10
SHEET NUMBER

BUILDING SECTION
SECTION ID
1 / A3.21
SHEET NUMBER

WALL SECTION
SECTION ID
1 / A4.11
SHEET NUMBER

DETAIL REFERENCE
DETAIL ID
1 / A9.04
SHEET NUMBER

OR

SIM
1 / A9.04

INTERIOR ELEVATION
ELEVATION ID
1A, 1B, 1C, 1D / A101
SHEET NUMBER

GRID LINES
A

GRAPHIC SCALE
0' 2' 4' 8'

Dim Point
ELEVATION MARKER

NORTH ARROW

MATCH LINE
A2.12
LOCATION OF ADJACENT DRAWING

ROOM TAG
ROOM NAME
ROOM NAME
101
ROOM NUMBER

SCHEDULE INDICATOR
1t
L - LOUVER
SF - STOREFRONT
W - WINDOW
FP - FIBERGLASS SANDWICH PANEL

P2
RESTORATION KEYNOTE

241-1
DOOR NUMBER

R241-2
INTERIOR WINDOW NUMBER

1t
1'-0"
CEILING INDICATOR

RT-1t
ROOF / FLOOR INDICATOR

1i
SIGNAGE INDICATOR

MODEL 102, WIDTH 30, DEPTH 24, HEIGHT 34.5
CASEWORK INDICATOR

A31
PARTITION TYPE
PARTITION INDICATOR

FLOOR BOX

EXIT SIGN

MS-X
METAL SHELVING

ARCHITECTURAL ABBREVIATIONS

ACP	ACOUSTICAL CEILING PANEL
ACT	ACOUSTICAL CEILING TILE
AFF	ABOVE FINISH FLOOR
AL	ALUMINUM
APPROX	APPROXIMATE
AVE	AVENUE
AVG	AVERAGE
BLDG	BUILDING
BOT	BOTTOM
C	AMERICAN STANDARD CHANNEL
CFCI	CONTRACTOR FURNISHED / CONTRACTOR INSTALLED
CFOI	CONTRACTOR FURNISHED / OWNER INSTALLED
CPT	CARPET
CG	CORNER GUARD
CJ	CONTROL JOINT
CL	CENTER LINE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CT	CERAMIC TILE
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DIM PT	DIMENSION POINT
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DW	DISHWASHER
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELEC
ELEV	ELEVATOR
EQUIP	EQUIPMENT
EXIST	EXISTING
EXT	EXTERIOR
FA	FIRE ALARM
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FTG	FOOTING
GA	GAUGE
GC	GENERAL CONTRACTOR
GI	GALVANIZED IRON
GL	GLASS, GLAZING
GLS	GLASS RESIN WALL SURFACING
GWB	GYPSUM WALL BOARD
GP	GYPSUM
HB	HOSE BIB
HBD	HARDBOARD
HC	HOLLOW CORE
HD	HEAVY DUTY
HDR	HEADER
HDW	HARDWARE
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HT	HEIGHT
HTG	HEATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWD	HARDWOOD
HWH	HOT WATER HEATER
ID	INSIDE DIAMETER
IN	INCHES
INCIN	INCINERATOR
INCL	INCLUDE(D)
INT	INTERIOR
INV	INVERT
JB	JUNCTION BOX
JC	JANITOR'S CLOSET
JT	JOINT
KD	KILN DRIED
KCP	KEENE'S CEMENT PLASTER
KO	KNOCKOUT
KP	KICK PLATE
L	LENGTH / ANGLE (AS STRUCTURAL SHAPE)
LAB	LABORATORY
LAM	LAMINATE(D)
LAV	LAVATORY
LBS	POUNDS
LF	LINEAR FOOT
LH	LEFT HAND
LL	LIVE LOAD
LONGIT	LONGITUDINAL
LP	LOW POINT
LW	LIGHTWEIGHT
MAX	MAXIMUM
MB	MACHINE BOLT
M. MECH	MECHANIC(AL)
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MO#	MODEL NUMBER
MOD	MODULAR
MPH	MILES PER HOUR
MS	MACHINE SCREW
MTL	METAL
MULL	MULLION
MWP	MEMBRANE WATERPROOFING
MWP-X	METAL WALL PANEL TYPE X
NA	NOT APPLICABLE
NAT	NATURAL, NATURAL FINISH
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NR	NON RATED
NTS	NOT TO SCALE
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER(S)
OD	OUTSIDE DIAMETER
OF	OVERFLOW
OFCI	OWNER FURNISHED; CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED; OWNER INSTALLED
OHMS	OVALHEAD MACHINE SCREW
OHWS	OVALHEAD WOOD SCREW
OPG	OPENING
OPP	OPPOSITE
OZ	OUNCE
P	PAINT
PERP	PERPENDICULAR
PL	PLATE
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
PNL	PANEL
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REBAR	REINFORCING BAR
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
SCHED	SCHEDULE
SF	SQUARE FEET
SHTG	SHEATHING
SIM	SIMILAR
SP	SCUPPER
SPEC	SPECIFICATIONS
SST	STAINLESS STEEL
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
SUSP	SUSPENDED
T&G	TONGUE AND GROOVE
TOC	TOP OF CURB / TOP OF CONCRETE
TOI	TOP OF INSULATION
TOR	TOP OF ROOF
TOP	TOP OF PARAPET
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VOL	VOLUME
W/O	WITHOUT
WD	WOOD
WDW	WINDOW
WT	WEIGHT

SHEET INDEX

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REGISTERED ARCHITECT JOSEPH ECHEVERRY 6439 PORTLAND, OREGON STATE OF OREGON

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DRAWING INDEX & PROJECT DATA

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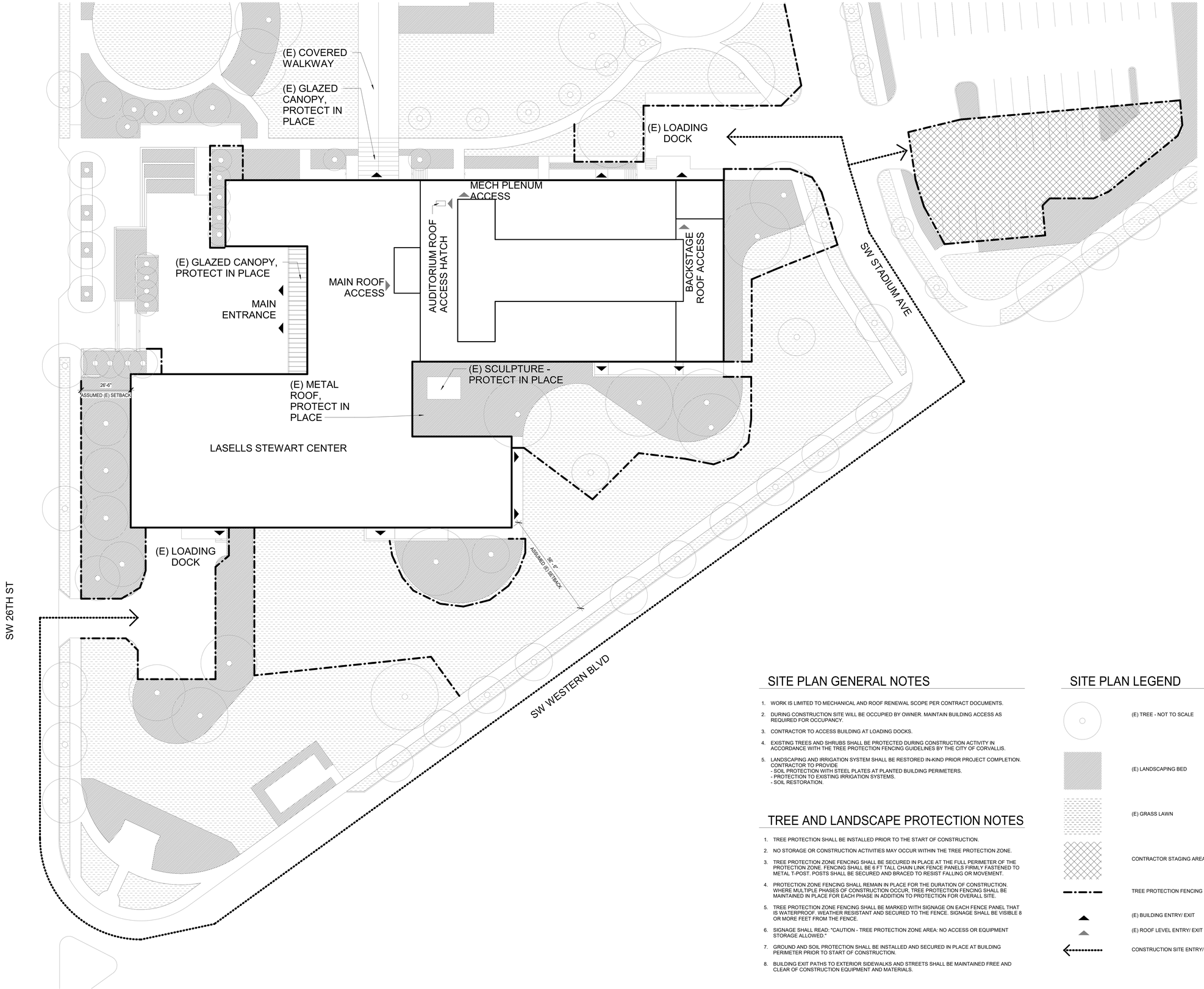

1 ARCHITECTURAL SITE PLAN
1" = 20'-0"

SITE PLAN GENERAL NOTES

1. WORK IS LIMITED TO MECHANICAL AND ROOF RENEWAL SCOPE PER CONTRACT DOCUMENTS.
2. DURING CONSTRUCTION SITE WILL BE OCCUPIED BY OWNER. MAINTAIN BUILDING ACCESS AS REQUIRED FOR OCCUPANCY.
3. CONTRACTOR TO ACCESS BUILDING AT LOADING DOCKS.
4. EXISTING TREES AND SHRUBS SHALL BE PROTECTED DURING CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE TREE PROTECTION FENCING GUIDELINES BY THE CITY OF CORVALLIS.
5. LANDSCAPING AND IRRIGATION SYSTEM SHALL BE RESTORED IN-KIND PRIOR PROJECT COMPLETION. CONTRACTOR TO PROVIDE
   - SOIL PROTECTION WITH STEEL PLATES AT PLANTED BUILDING PERIMETERS.
   - PROTECTION TO EXISTING IRRIGATION SYSTEMS.
   - SOIL RESTORATION.

TREE AND LANDSCAPE PROTECTION NOTES

1. TREE PROTECTION SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.
2. NO STORAGE OR CONSTRUCTION ACTIVITIES MAY OCCUR WITHIN THE TREE PROTECTION ZONE.
3. TREE PROTECTION ZONE FENCING SHALL BE SECURED IN PLACE AT THE FULL PERIMETER OF THE PROTECTION ZONE. FENCING SHALL BE 6 FT TALL CHAIN LINK FENCE PANELS FIRMLY FASTENED TO METAL T-POST. POSTS SHALL BE SECURED AND BRACED TO RESIST FALLING OR MOVEMENT.
4. PROTECTION ZONE FENCING SHALL REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION. WHERE MULTIPLE PHASES OF CONSTRUCTION OCCUR, TREE PROTECTION FENCING SHALL BE MAINTAINED IN PLACE FOR EACH PHASE IN ADDITION TO PROTECTION FOR OVERALL SITE.
5. TREE PROTECTION ZONE FENCING SHALL BE MARKED WITH SIGNAGE ON EACH FENCE PANEL THAT IS WATERPROOF. WEATHER RESISTANT AND SECURED TO THE FENCE. SIGNAGE SHALL BE VISIBLE 8 OR MORE FEET FROM THE FENCE.
6. SIGNAGE SHALL READ: "CAUTION - TREE PROTECTION ZONE AREA: NO ACCESS OR EQUIPMENT STORAGE ALLOWED."
7. GROUND AND SOIL PROTECTION SHALL BE INSTALLED AND SECURED IN PLACE AT BUILDING PERIMETER PRIOR TO START OF CONSTRUCTION.
8. BUILDING EXIT PATHS TO EXTERIOR SIDEWALKS AND STREETS SHALL BE MAINTAINED FREE AND CLEAR OF CONSTRUCTION EQUIPMENT AND MATERIALS.

SITE PLAN LEGEND

- (E) TREE - NOT TO SCALE
- (E) LANDSCAPING BED
- (E) GRASS LAWN
- CONTRACTOR STAGING AREA
- TREE PROTECTION FENCING (CHAIN LINK)
- (E) BUILDING ENTRY/ EXIT
- (E) ROOF LEVEL ENTRY/ EXIT
- CONSTRUCTION SITE ENTRY/ EXIT ROUTE

0' 5' 10' 20'

2/17/2022 3:44:27 PM

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JOSEPH ECHEVERRI
6426
PORTLAND, OREGON
STATE OF OREGON

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ARCHITECTURAL SITE PLAN

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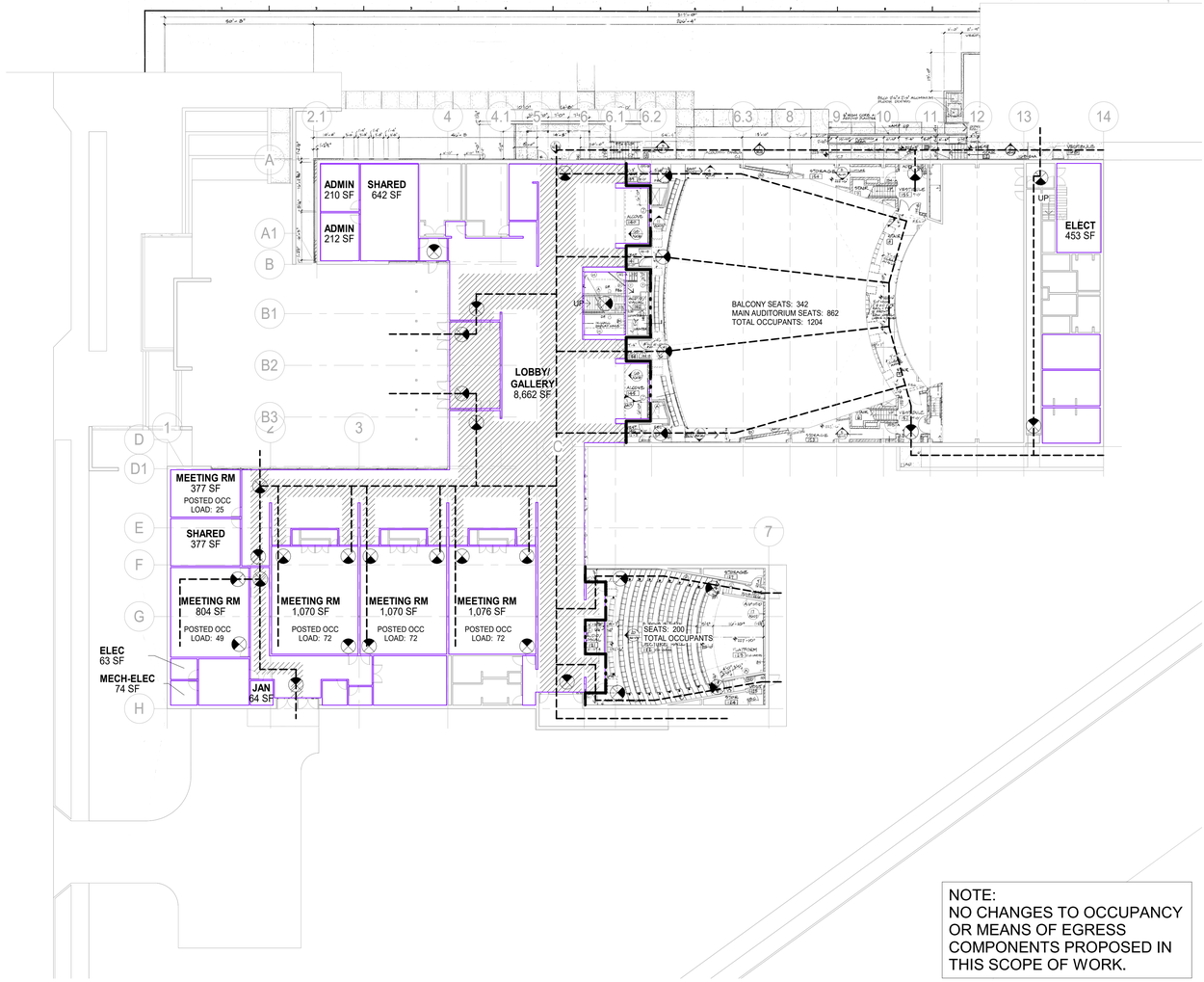

NOTE:
NO CHANGES TO OCCUPANCY OR MEANS OF EGRESS COMPONENTS PROPOSED IN THIS SCOPE OF WORK.

1 FLS FLOOR PLAN
1" = 20'-0"

0' 5' 10' 20' N

CODE PLAN LEGEND

DRAWING SYMBOL	DESCRIPTION
	(E) FIRE WALL - 4 HRS
	(E) FIRE BARRIER - 2 HRS
	EXIT ACCESS PATH OF TRAVEL
	EXIT WIDTH
	EXIT SIGNAGE
FEC	(E) FIRE EXTINGUISHER CABINET

NOTES:
1. EXISTING BUILDING EQUIPPED WITH AUTOMATIC FIRE SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH NFPA 13.
2. EXISTING BUILDING EQUIPPED WITH FIRE EXTINGUISHERS.
3. EXISTING BUILDING EXITS SHALL REMAIN FREE AND UNOBSTRUCTED FOR EXITING DURING CONSTRUCTION.
4. TEMPORARY CONDITIONS DURING CONSTRUCTION SHALL PROVIDE FREE AND UNOBSTRUCTED ACCESS TO BUILDING EXITS.
5. TEMPORARY CONDITIONS DURING CONSTRUCTION SHALL PROVIDE EMERGENCY LIGHTING LEVELS AS REQUIRED FOR OPERATIONS DURING BUSINESS HOURS.

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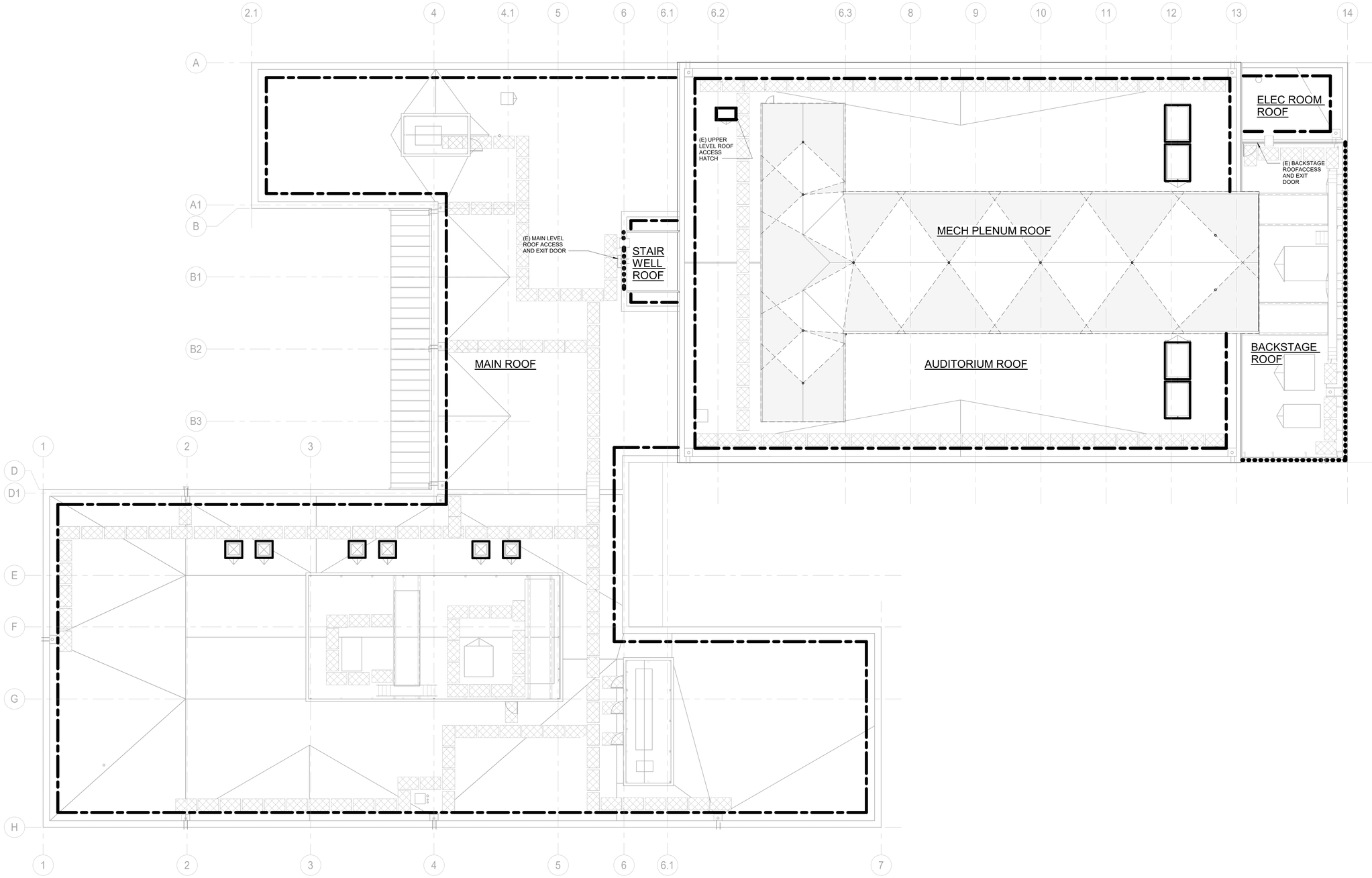
MAIN LEVEL PLAN - LIFE SAFETY

G1.20



1 COMPOSITE ROOF PLAN - ROOF SAFETY
1" = 10'-0"

0' 5' 10'

ROOF SAFETY GENERAL NOTES

1. ROOF GREYED OUT FOR VISUAL CLARITY. SEE SHEETS A2.01 AND A2.02 FOR COMPLETE ROOF PLAN.
2. FALL PROTECTION TO BE DELEGATED DESIGN. LAYOUT PROVIDED FOR ESTIMATING PURPOSES ONLY.

ROOF SAFETY LEGEND

077200 - SAFETY RAILING SYSTEM - ROOF HATCH, SMOKE VENT, SKYLIGHTS

055213 - PIPE RAILING FALL PROTECTION REQUIREMENT

RAISED PARAPET/ MECHANICAL SCREEN HEIGHT MEETS FALL PROTECTION REQUIREMENT

118129 - FACILITY FALL PROTECTION FALL RESTRAINT ANCHOR MOUNTED TO HORIZONTAL STRUCTURE. SEE STRUCTURAL DRAWINGS

ALLOWED WORKING DISTANCE, VARIES

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Portland, OR 97204
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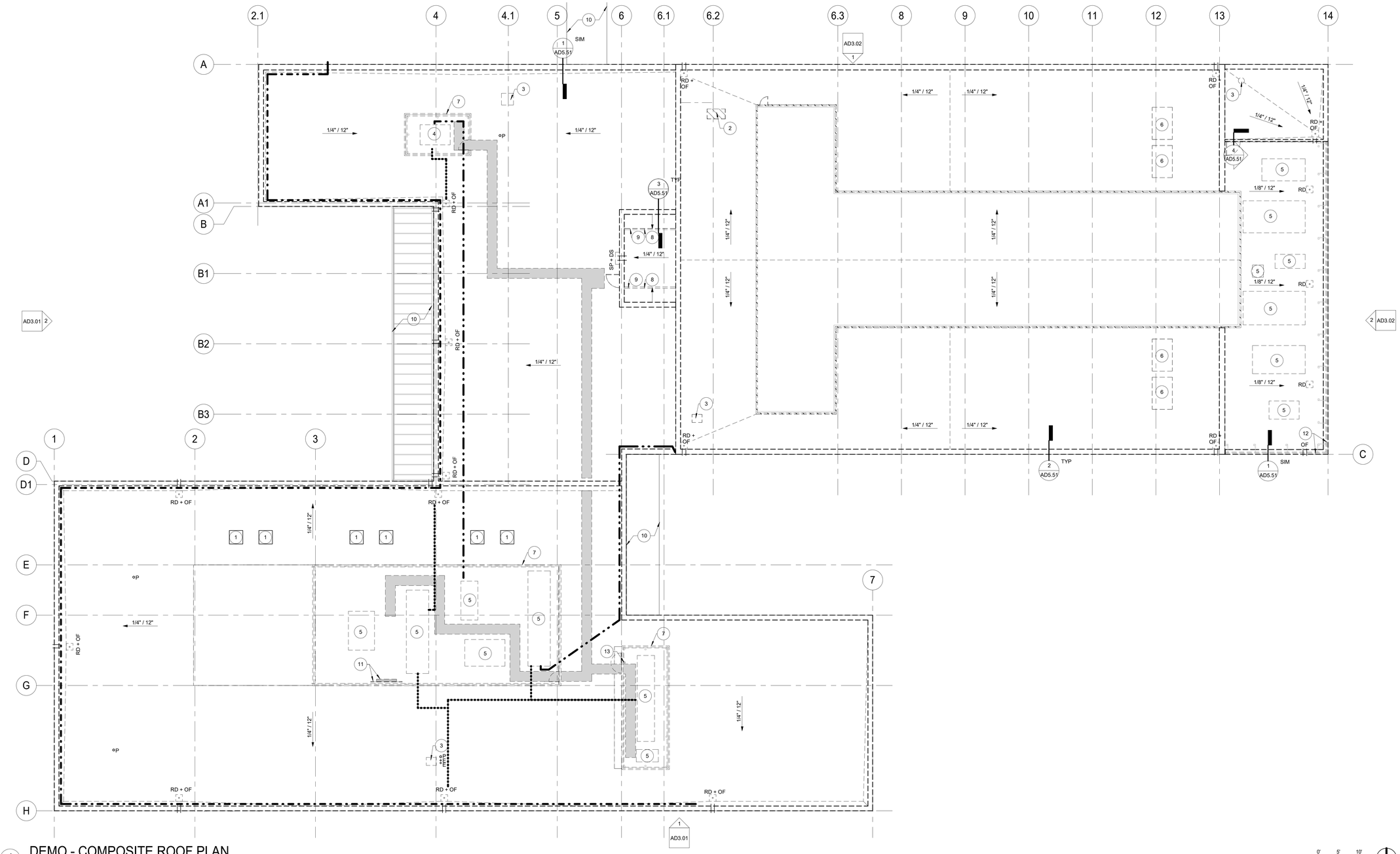
COMPOSITE ROOF PLAN - LIFE SAFETY

G1.21



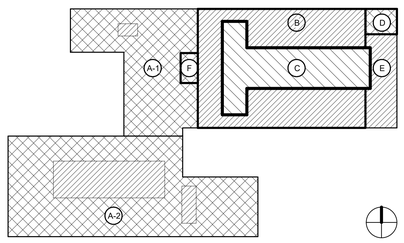
1 DEMO - COMPOSITE ROOF PLAN

1" = 10'-0"

0' 5' 10'

ROOF SYSTEM DEMOLITION

A-1	MAIN ROOF NORTH MECHANICAL YARD	- RT-02 - RT-01
A-2	MAIN ROOF SOUTH MECHANICAL YARDS	- RT-02 - RT-01
B	AUDITORIUM ROOF	- RT-01
C	MECHANICAL PLENUM ROOF	- RT-03
D	ELECTRICAL ROOM ROOF	- RT-02
E	BACK STAGE ROOF	- RT-01
F	STAIRWELL ROOF	- RT-02



ROOF SYSTEM DEMOLITION LEGEND

RT-01:
REMOVE ROOF SYSTEM CONSTRUCTION ABOVE STRUCTURAL CONCRETE SLAB/ STRUCTURAL DECKING. CONCRETE SLAB, ROOF DECK AND STRUCTURE TO REMAIN. PARAPET FLASHING, COPPER COPING AND BLOCKING TO BE REMOVED IN PREPARATION FOR NEW ROOFING ASSEMBLY AND MODIFIED PARAPET HEIGHT.

RT-02:
REMOVE ROOF SYSTEM CONSTRUCTION ABOVE STRUCTURAL DECKING. ROOF DECK AND STRUCTURE TO REMAIN. PARAPET FLASHING, COPPER COPING AND BLOCKING TO BE REMOVED IN PREPARATION FOR NEW ROOFING ASSEMBLY AND MODIFIED PARAPET HEIGHT.

RT-03:
REMOVE ROOF SYSTEM CONSTRUCTION ABOVE STRUCTURAL DECKING. ROOF DECK AND STRUCTURE TO REMAIN. PARAPET FLASHING, COPPER COPING AND BLOCKING TO BE REMOVED IN PREPARATION FOR NEW ROOFING ASSEMBLY AND MODIFIED PARAPET HEIGHT.

DEMOLITION GENERAL NOTES

1. ROOF SYSTEM REMOVAL AND SELECTIVE DEMOLITION OF SPECIFIC COMPONENTS HAVE BEEN SEPARATED INTO TWO DRAWINGS FOR CLARITY. SEE ROOF SYSTEM DEMOLITION DIAGRAM FOR EXTENT OF ROOFING REMOVAL PER ROOF TYPE ASSEMBLY. SEE DEMO - COMPOSITE ROOF PLAN FOR EXTENTS OF VARIOUS COMPONENTS REMOVAL.
2. SEE DEMO COMPOSITE BUILDING ELEVATIONS AND DEMO EXTERIOR DETAILS FOR DEMOLITION OF EXTERIOR FINISH TO BE REMOVED.
3. SEE DEMO STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL FOR FURTHER COMPONENTS TO BE REMOVED.
4. PROVIDE LIST OF SALVAGE ITEMS AND QUANTITIES TO OWNER PRIOR TO REMOVAL.

DEMOLITION KEYED NOTES

1 REMOVE AND SALVAGE 3'-4" x 3'-4" SKYLIGHT IN PREPARATION OF CURB REPLACEMENT.
2 REMOVE 30"x54" ROOF ACCESS HATCH.
3 REMOVE AND SALVAGE FAN AND VENT UNIT AND ASSOCIATED APPURTUNANCES IN PREPARATION OF CURB REPLACEMENT. SEE MECHANICAL.
4 REMOVE AND SALVAGE MECHANICAL UNIT AND ASSOCIATED APPURTUNANCES IN PREPARATION OF CURB REPLACEMENT. SEE MECHANICAL.
5 REMOVE MECHANICAL UNIT AND ASSOCIATED APPURTUNANCES IN PREPARATION OF CURB REPLACEMENT. SEE MECHANICAL.
6 REMOVE AND SALVAGE 5'-0" x 8'-0" SMOKE VENT IN PREPARATION OF CURB REPLACEMENT.
7 REMOVE WOOD MECHANICAL SCREEN WALL ASSEMBLY. SEE STRUCTURAL FOR EXISTING COLUMNS TO REMAIN. REMOVE STEEL CONNECTIONS PLATES, ANGLES AND CONNECTORS AT STEEL COLUMNS TO REMAIN.
8 REMOVE AND SALVAGE COPPER GUTTER, SCUPPERS AND DOWNSPOUTS.
9 REMOVE (2) CLERESTORY UNIT BELOW. SEE SHEET AD5.51 FOR DEMOLITION DETAIL.
10 CANOPY BELOW - NIC. PROTECT IN PLACE.
11 REMOVE ELECTRICAL PANEL AND HORIZONTAL UNISTRUTS MOUNTED TO STEEL POSTS.
12 REMOVE WOOD MECHANICAL SCREEN WALL. SEE STRUCTURAL FOR EXISTING COLUMNS TO REMAIN. AT COLUMNS REMOVE LOWER STEEL ANGLE BRACKET ASSEMBLY.
13 REMOVE STEEL POST DOWN TO CONCRETE DECK.

DEMOLITION ROOF PLAN LEGEND

- SP + DS — REMOVE AND SALVAGE THROUGH WALL COPPER SCUPPER AND DOWNSPOUT
- RD + OF — REMOVE AND SALVAGE ROOF SUMPS, PANS, AND COPPER SCUPPERS
- °P — PIPE PENETRATION TO REMAIN, PROTECT IN PLACE
- °E — ELECTRICAL CONDUIT PENETRATION TO REMAIN, PROTECT IN PLACE
- ROOF SLOPE DIRECTION
- REMOVE AND DISPOSE OF ELECTRICAL CONDUIT LINE, SEE ELECTRICAL
- REMOVE AND DISPOSE OF GAS LINE, SEE MECHANICAL
- REMOVE AND DISPOSE OF CONDENSATE PIPE, SEE MECHANICAL
- REMOVE/ DISMANTLE/ CUT ELEMENT
- REMOVE AND DISPOSE OF WALKING PADS

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721 NW 9th Ave, Suite 350
Portland, Oregon 97209
T (503) 224 9162
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KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

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GLUMAC
900 SW 5th Ave, Suite 1600
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DEMO - COMPOSITE ROOF PLAN

AD2.01

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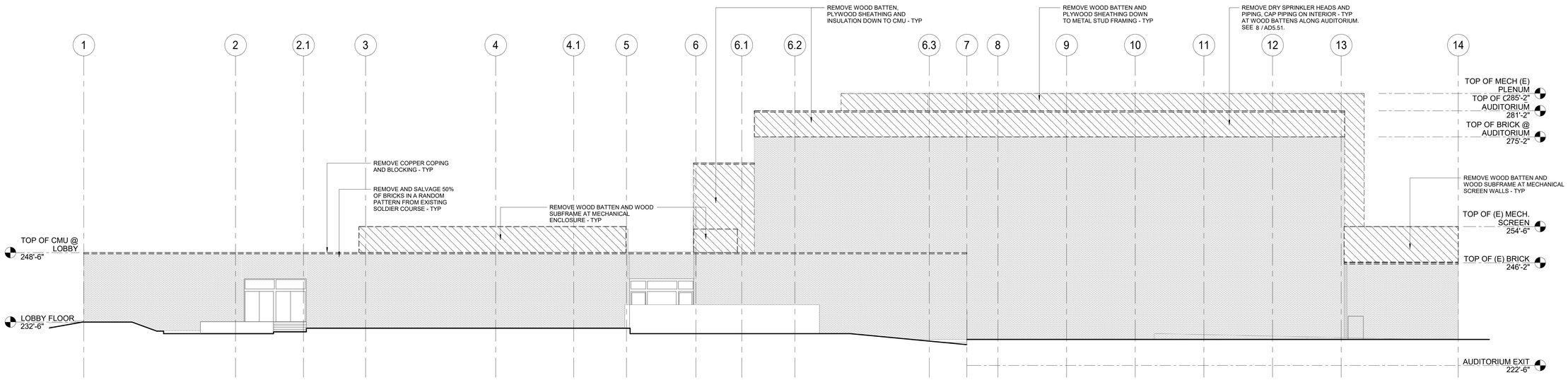
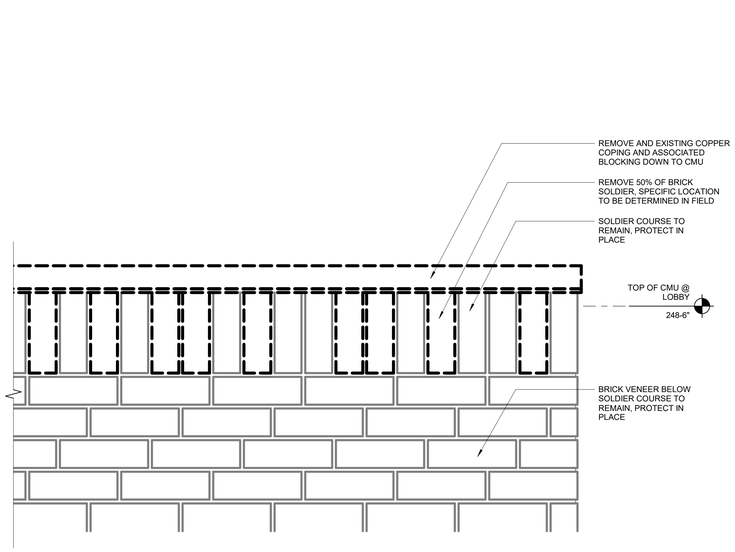
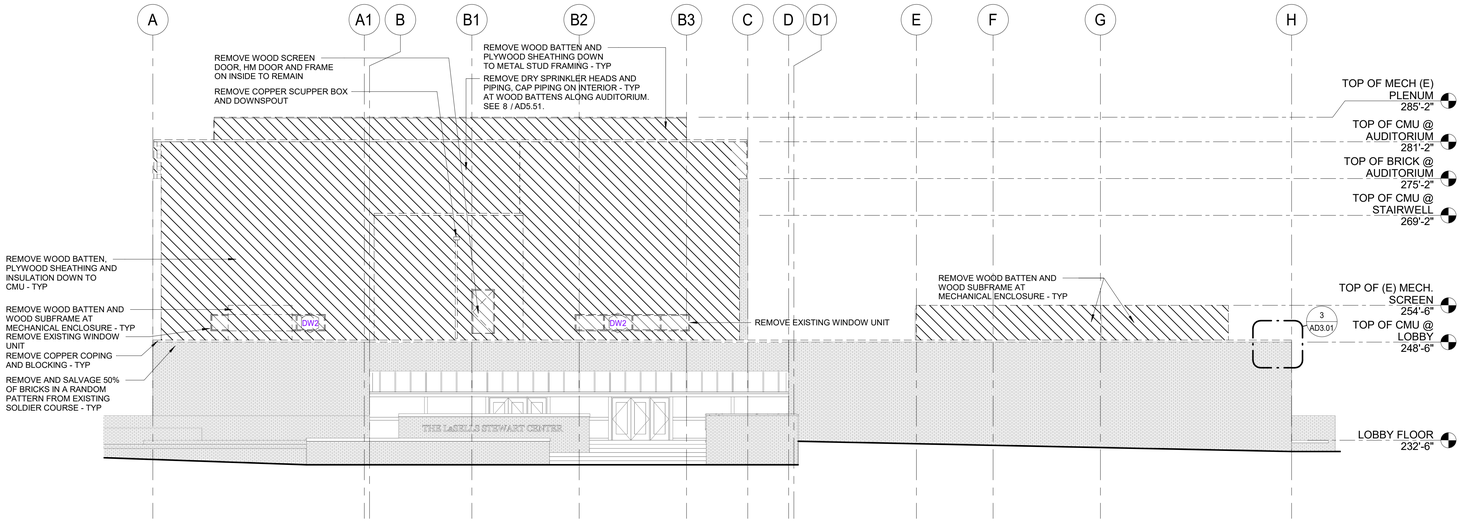


1 DEMO - COMPOSITE BUILDING ELEVATION - SOUTH
1" = 10'-0"



3 DEMO - ENLARGED PARAPET ELEVATION
1 1/2" = 1'-0"



2 DEMO - COMPOSITE BUILDING ELEVATION - WEST
1" = 10'-0"

DEMOLITION LEGEND

- REMOVE WALL ASSEMBLY TO STRUCTURAL CONCRETE MASONY UNIT/ STRUCTURAL STUD, UNO
- REMOVE/ DISMANTLE/ CUT ELEMENT

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721 NW 9th Ave, Suite 350
Portland, Oregon 97209
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KPFF
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Portland, OR 97204
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DEMO - COMPOSITE BLDG ELEVATIONS

AD3.01

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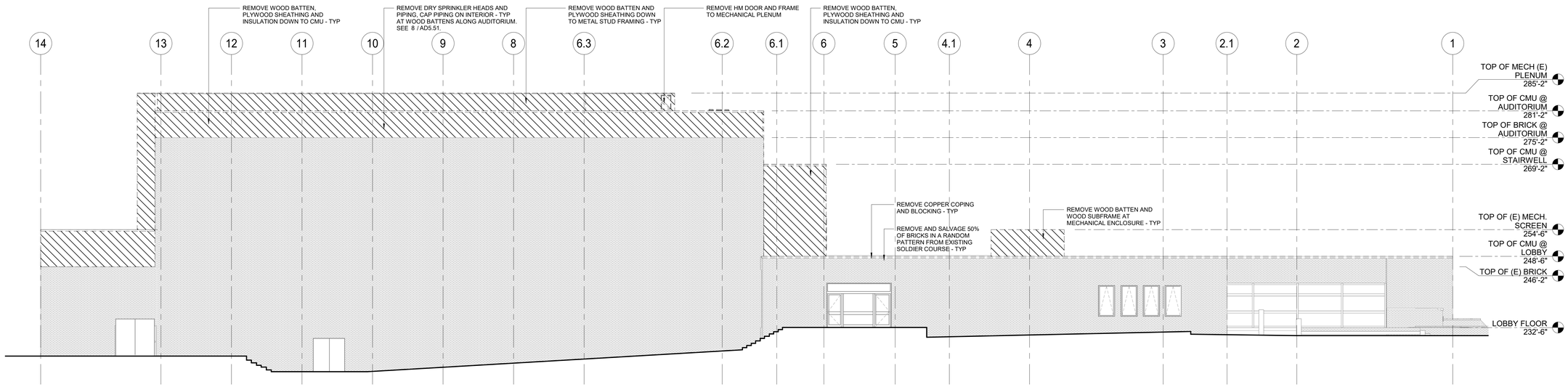
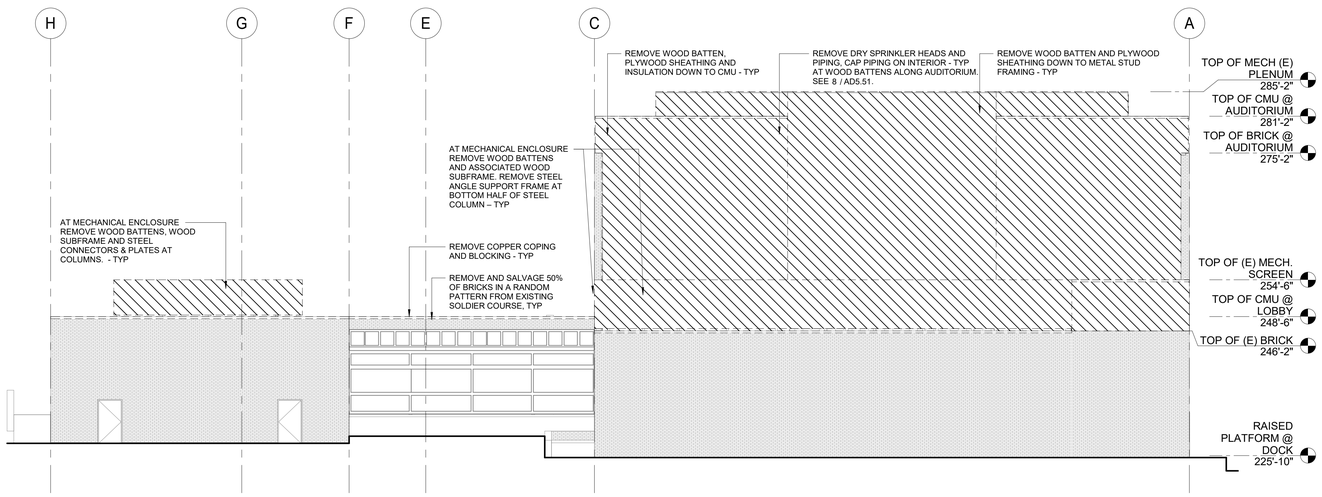


1 DEMO - COMPOSITE BUILDING ELEVATION - NORTH
1" = 10'-0"



2 DEMO - COMPOSITE BUILDING ELEVATION - EAST
1" = 10'-0"

DEMOLITION LEGEND

REMOVE WALL ASSEMBLY TO STRUCTURAL CONCRETE MASONY UNIT, UNO

REMOVE/ DISMANTLE/ CUT ELEMENT

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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
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FORENSIC BUILDING CONSULTANTS
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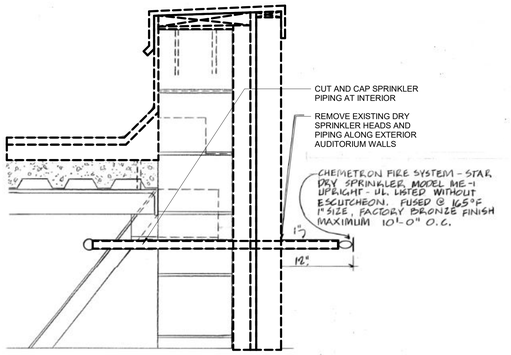
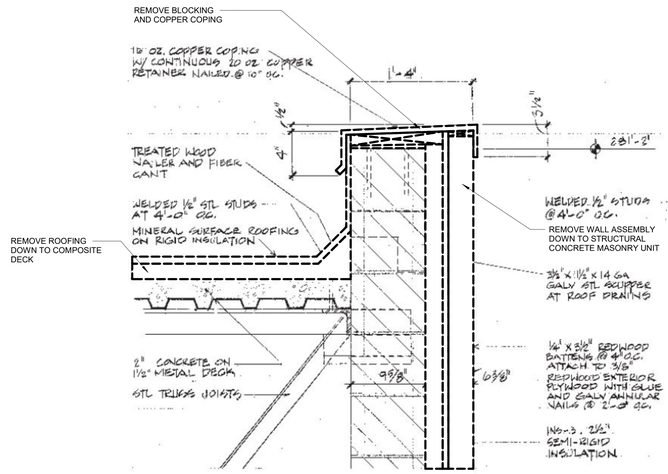
DEMO - COMPOSITE BLDG ELEVATIONS

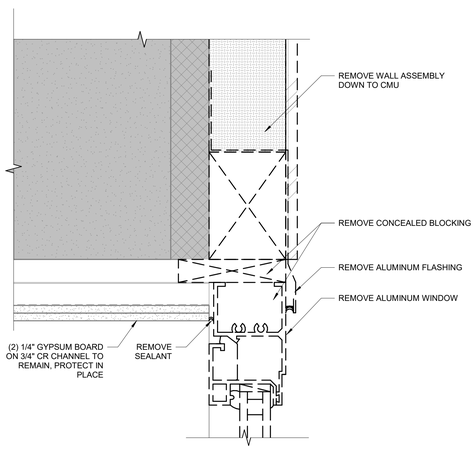
AD3.02



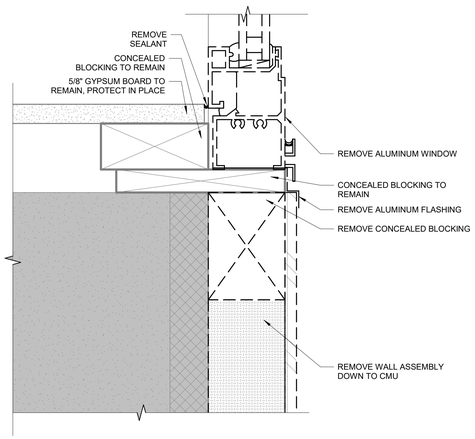
8 DEMO - SPRINKLER AT AUDITORUM ROOF
1 1/2" = 1'-0"



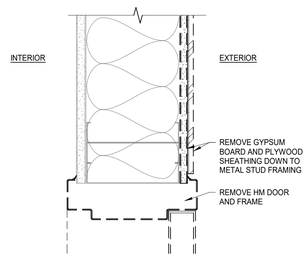
2 DEMO - PARAPET AT AUDITORIUM LEVEL ROOF
1 1/2" = 1'-0"



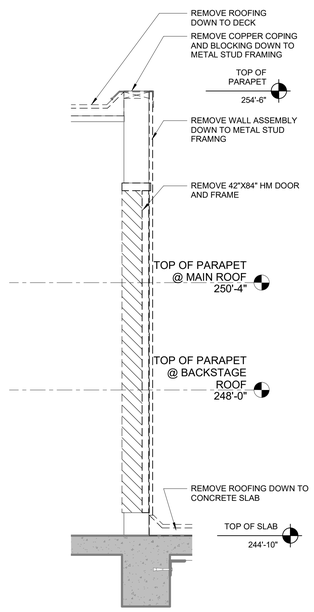
6 DEMO - AUDITORIUM WINDOW - HEAD
6" = 1'-0"



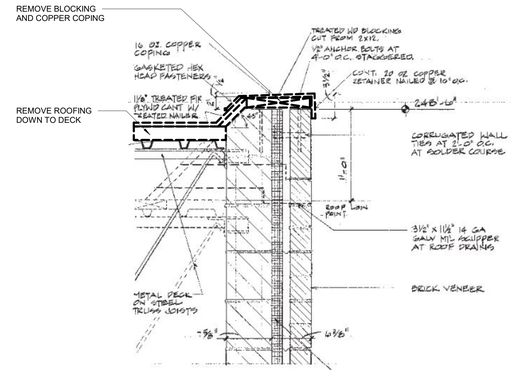
7 DEMO - AUDITORIUM WINDOW - SILL
6" = 1'-0"



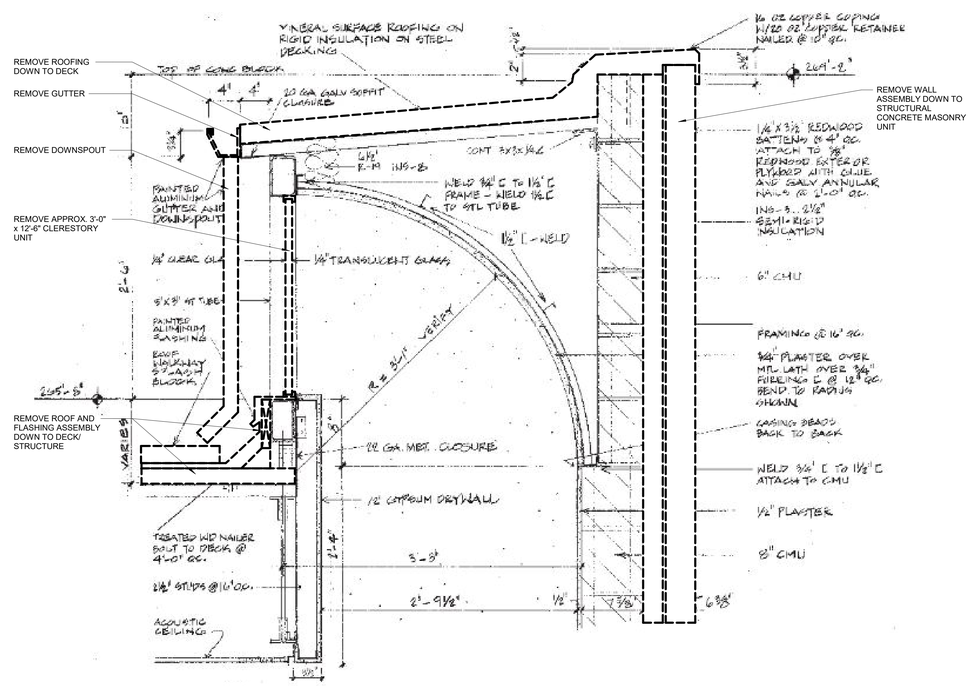
5 DEMO - DOOR 206 EX A - HEAD/ JAMB
3" = 1'-0"



4 DEMO - WALL AT ELECTRICAL ROOM ROOF
3/4" = 1'-0"



1 DEMO - PARAPET AT LOWER LEVEL ROOFS
1 1/2" = 1'-0"



3 DEMO - CLERESTORY @ STAIRWELL ROOF
1 1/2" = 1'-0"

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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
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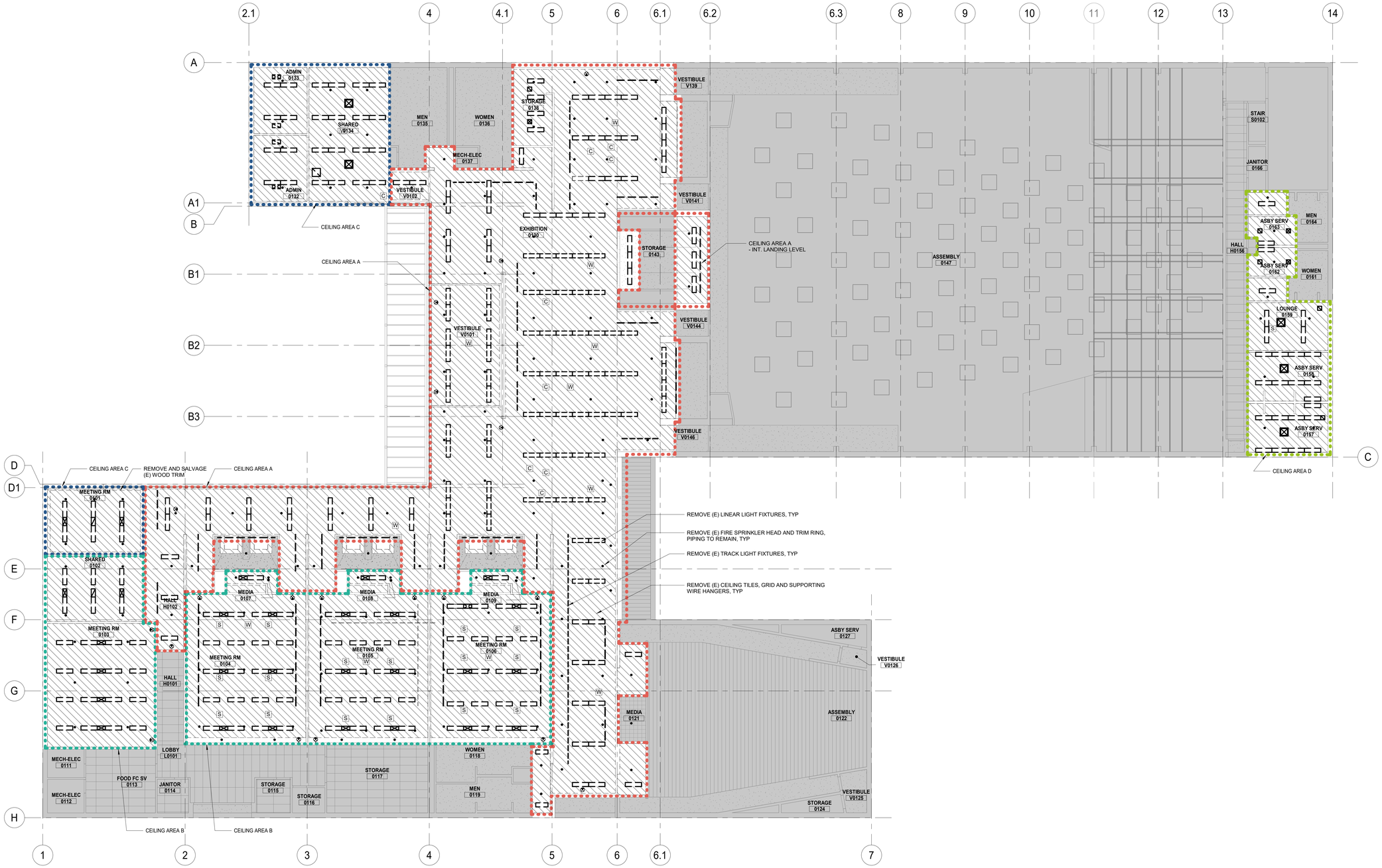
DEMO - EXTERIOR DETAILS

AD5.51



2 DEMO - REFLECTED CEILING PLAN - LOWER LEVEL

1" = 10'-0"

0' 5' 10'

DEMOLITION CEILING GENERAL NOTES

1. SEE DEMO MECHANICAL, PLUMBING AND ELECTRICAL FOR FURTHER COMPONENTS TO BE REMOVED.
2. SEE DEMO RCP UPPER LEVEL FOR FURTHER COMPONENTS TO BE REMOVED.
3. WALL MOUNTED ITEMS SHALL BE PROTECTED. COMPONENTS LESS THAN 24 INCHES FROM CEILING SHALL BE REMOVED AND REINSTALLED AT LOCATION(S) AS DIRECTED BY OSU.
4. PROVIDE LIST OF SALVAGE ITEMS AND QUANTITIES TO OSU PRIOR TO REMOVAL.

DEMO RCP LEGEND

- (E) CEILING AREA - NOT IN SCOPE
- REMOVE EXISTING CEILING TILES, GRID AND SUPPORTING WIRE HANGERS
- REMOVE (E) LINEAR LIGHT FIXTURE
- REMOVE (E) TRACK LIGHT FIXTURE
- [C] REMOVE AND SALVAGE (E) CEILING MOUNTED SECURITY CAMERA
- [W] REMOVE AND SALVAGE (E) CEILING MOUNTED WIRELESS ACCESS POINT
- [S] REMOVE AND REINSTALL AUDIO SPEAKER
- REMOVE AND SALVAGE (E) CEILING MOUNTED EXIT SIGN
- REMOVE AND SALVAGE (E) WALL MOUNTED EXIT SIGN
- REMOVE (E) SUPPLY AIR DIFFUSER, SIZE VARIES
- REMOVE (E) RETURN AIR GRILLE, SIZE VARIES
- REMOVE (E) FIRE SPRINKLER HEAD AND TRIM RING IN PREPARATION FOR MODIFIED SPRINKLER HEAD. LOCATION AS INDICATED ON SHEET A8.11. PIPING TO REMAIN, PROTECT IN PLACE. (E) LOCATIONS SHOWN FOR LAYOUT PURPOSES ONLY.

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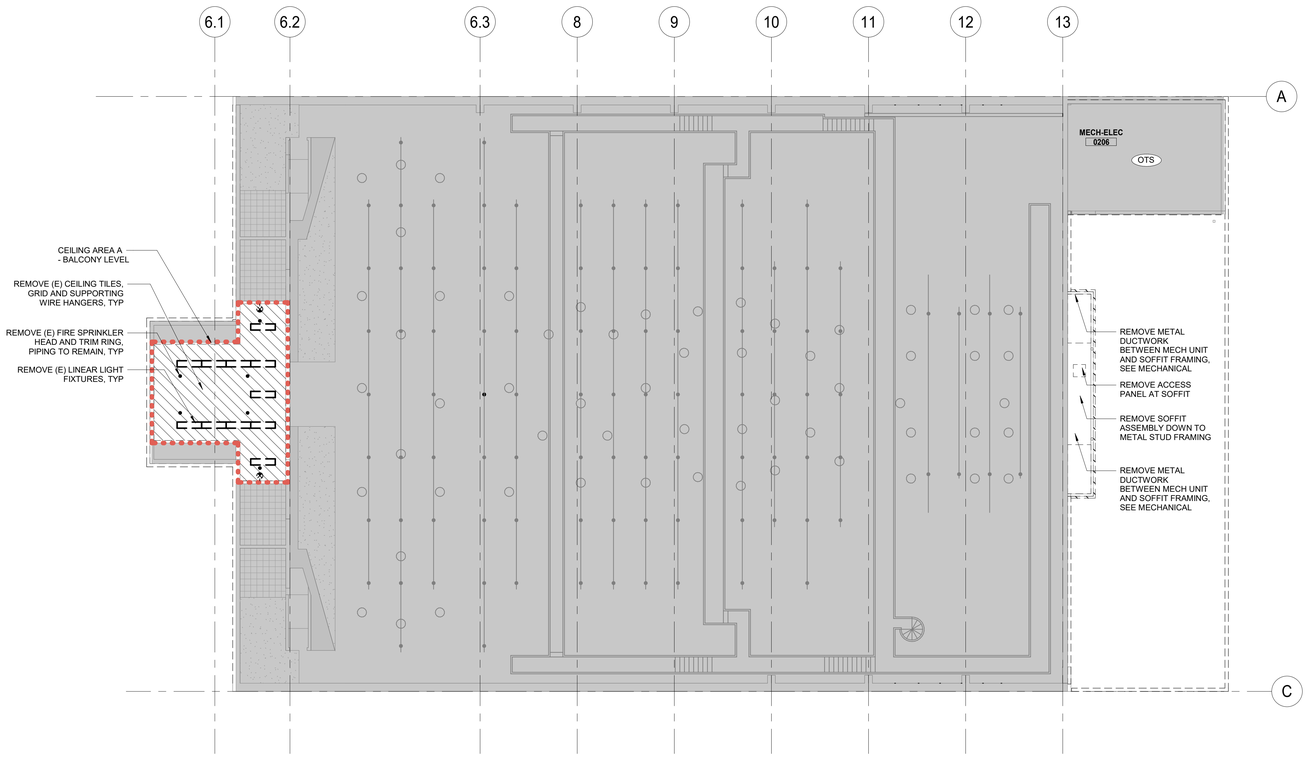
DEMO - RCP - LOWER LEVEL

AD8.11



1 DEMO - REFLECTED CEILING PLAN - UPPER LEVEL

1" = 10'-0"

0' 5' 10'

DEMO RCP LEGEND

- (E) CEILING AREA - NOT IN SCOPE
- REMOVE EXISTING CEILING TILES, GRID AND SUPPORTING WIRE HANGERS
- REMOVE (E) LINEAR LIGHT FIXTURE
- REMOVE AND SALVAGE (E) WALL MOUNTED EXIT SIGN
- REMOVE (E) FIRE SPRINKLER HEAD AND TRIM RING IN PREPARATION FOR MODIFIED SPRINKLER HEAD LOCATION AS INDICATED ON SHEET A8.11. PIPING TO REMAIN, PROTECT IN PLACE. (E) LOCATIONS SHOWN FOR LAYOUT PURPOSES ONLY.

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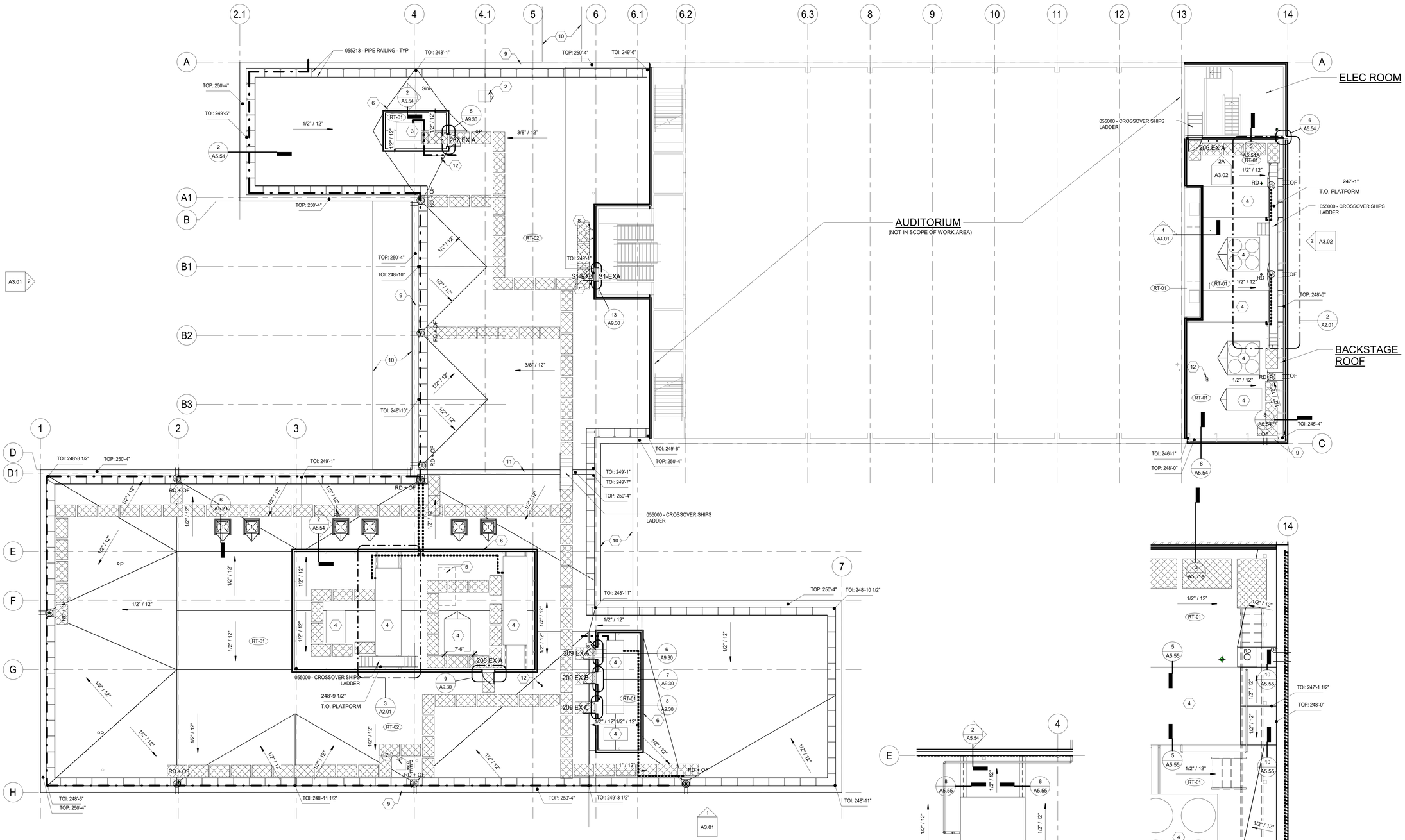
DEMO - RCP - UPPER LEVEL

PERMIT SET

AD8.12



1 ROOF PLAN - LOWER LEVEL
1" = 10'-0"

ROOF PLAN GENERAL NOTES

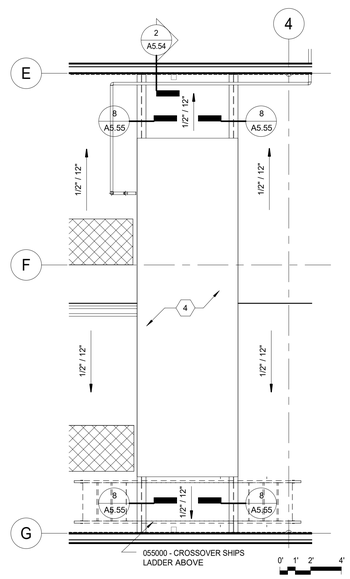
1. SEE SHEET A9.21 FOR ROOF TYPE ASSEMBLIES.
2. CRICKETS TO HAVE A SLOPE OF 1/2" PER FOOT MINIMUM.
3. VALLEYS TO HAVE A SLOPE OF 1/4" PER FOOT MINIMUM.
4. LOW-SLOPE ROOF SLOPES ARE TO BE 1/2" PER FOOT MINIMUM.
5. INSTALL BLOCKING AT ALL ROOF PENETRATIONS LARGER THAN 6" IN ANY DIRECTION.
6. COORDINATION: COORDINATE WORK TO COMPLY WITH DRAWINGS AND SPECIFICATIONS, INCLUDING MECHANICAL, ELECTRICAL EQUIPMENT AND OTHER CONSTRUCTION.
7. ALL EXISTING ROOF DRAINS, WALL THROUGH SCUPPERS, GUTTERS AND DOWNSPOUTS TO BE REPLACED.
8. ALL CURBS TO BE RAISED TO ACCOMODATE NEW ROOFING.
9. ELEVATION OF EXISTING ROOF DECK VARIES, SEE STRUCTURAL RECORD DRAWINGS FOR SPOT ELEVATIONS.

ROOF PLAN KEYED NOTES

1 INSTALL 3'-4" x 3'-4" SKYLIGHT WITH INTEGRATED GUARDRAIL SYSTEM ON RAISED CURB.
2 REINSTALL (E) FAN AND VENT UNIT AND ASSOCIATED APPURTUNANCES ON MODIFIED CURB. SEE MECHANICAL.
3 REINSTALL (E) MECHANICAL UNIT AND ASSOCIATED APPURTUNANCES ON MODIFIED CURB. SEE MECHANICAL.
4 INSTALL MECHANICAL UNIT AND ASSOCIATED APPURTUNANCES ON PRE-MANUFACTURED CURB. SEE MECHANICAL.
5 PATCH, REPAIR AND INFILL ROOF ASSEMBLY AT LOCATION OF REMOVED MECHANICAL UNIT.
6 INSTALL MECHANICAL ENCLOSURE ON METAL SUBFRAME, SEE SHEET A5.54.
7 INSTALL EXTERIOR SCREEN DOOR TO MATCH ADJACENT METAL PANELS.
8 INSTALL HIGH CAGED METAL LADDER, PAINT TO MATCH ADJACENT METAL PANELS.
9 RAISE PARAPET TO ACCOMMODATE FINISH HEIGHT OF NEW ROOFING - SEE SHEET A5.51.
10 (E) CANOPY BELOW - NIC.
11 RAISE TOP OF PARAPET TO MATCH ADJACENT.
12 WATER HYDRANT - SEE PLUMBING DRAWINGS.

ROOF PLAN LEGEND

- WALKING PADS
- SP + DS — INSTALL THROUGH WALL SCUPPER AND DOWNSPOUT
- RD + OF — INSTALL ROOF SUMPS, PANS, AND SCUPPER
- oP — (E) PIPE PENETRATION
- oE — (E) ELECTRICAL CONDUIT PENETRATION
- ROOF SLOPE DIRECTION
- INSTALL ELECTRICAL CONDUIT LINE, SEE ELECTRICAL
- INSTALL GAS LINE, SEE MECHANICAL
- INSTALL CONDENSATE PIPE, SEE MECHANICAL



3 ENLARGED ROOF PLAN - SW MECH YARD
1/4" = 1'-0"

2 ENLARGED ROOF PLAN - BACKSTAGE ROOF
1/4" = 1'-0"

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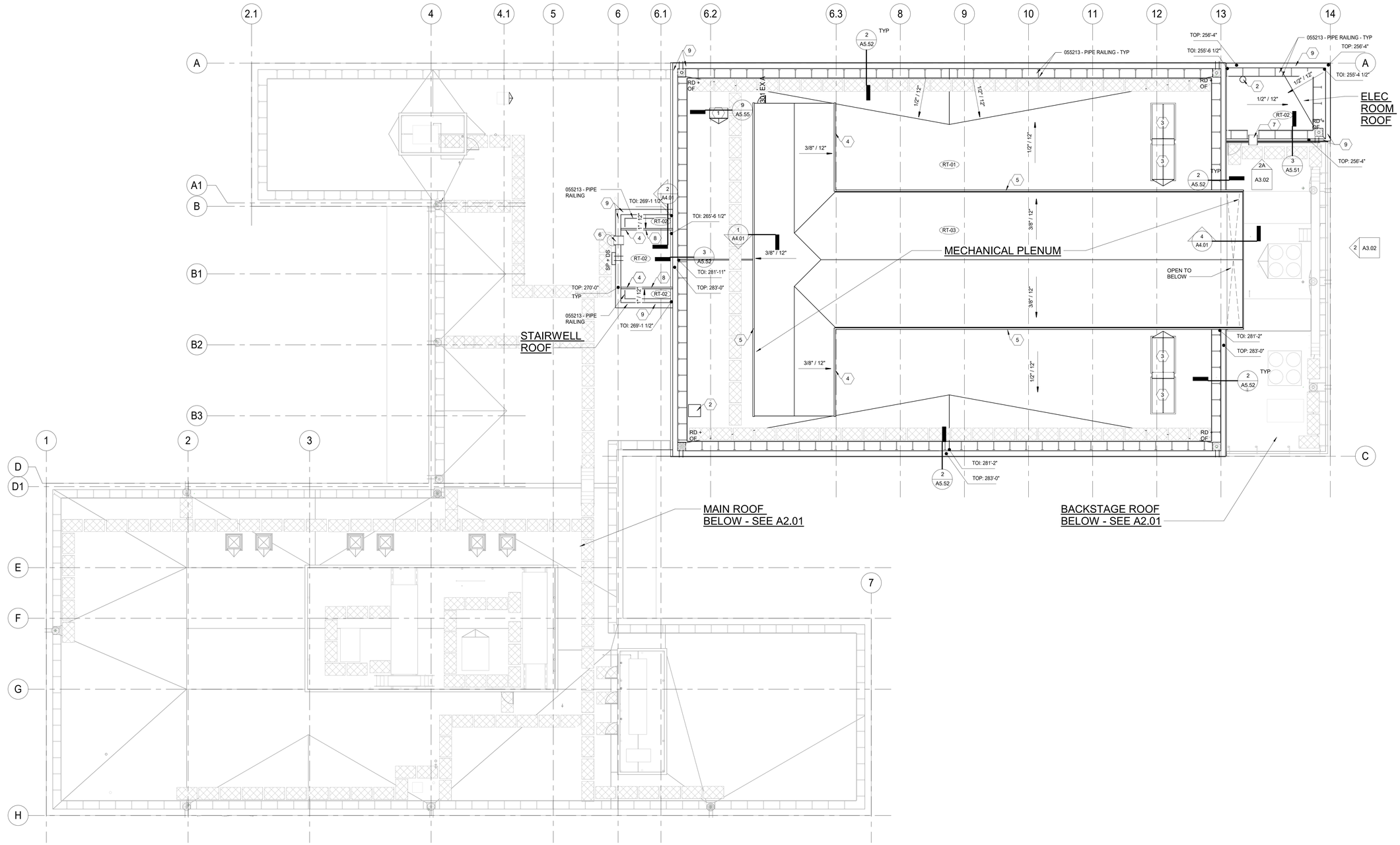
ROOF PLAN - LOWER LEVEL

PERMIT SET

A2.01



1 ROOF PLAN - UPPER LEVEL
1" = 10'-0"

0' 5' 10'

ROOF PLAN GENERAL NOTES

1. SEE SHEET A9.21 FOR ROOF TYPE ASSEMBLIES.
2. CRICKETS TO HAVE A SLOPE OF 1/2" PER FOOT MINIMUM.
3. VALLEYS TO HAVE A SLOPE OF 1/4" PER FOOT MINIMUM.
4. LOW-SLOPE ROOF SLOPES ARE TO BE 1/2" PER FOOT MINIMUM, UNO.
5. INSTALL BLOCKING AT ALL ROOF PENETRATIONS LARGER THAN 6" IN ANY DIRECTION.
6. COORDINATION: COORDINATE WORK TO COMPLY WITH DRAWINGS AND SPECIFICATIONS, INCLUDING MECHANICAL, ELECTRICAL, EQUIPMENT AND OTHER CONSTRUCTION.
7. ALL EXISTING ROOF DRAINS, THROUGH-WALL SCUPPERS, GUTTERS AND DOWNSPOUTS TO BE REPLACED.
8. CLEAN AND REPAIR SOILED/ PLUGGED ROOF DRAINS AT ALL ROOFS.
9. ALL CURBS TO BE MODIFIED TO ACCOMMODATE NEW ROOFING.
10. ELEVATION OF EXISTING ROOF DECK VARIES, SEE STRUCTURAL RECORD DRAWINGS FOR SPOT ELEVATIONS.

ROOF PLAN KEYED NOTES

1 INSTALL 30" x 54" ROOF ACCESS HATCH. MATCH EXISTING OPENING SIZE.
2 REINSTALL (E) FAN AND VENT UNIT AND ASSOCIATED APPURTUNANCES ON MODIFIED CURB. SEE MECHANICAL.
3 REINSTALL (E) 5'-0" x 8'-0" SMOKE VENT ON RAISED CURB. SEE 9 / A5.55 FOR SIMILAR CURB AND FLASHING DETAIL. INSTALL GUARDRAIL SYSTEM FOR RETROFIT APPLICATION.
4 INSTALL (1) 5" SQ. GUTTER AND (1) 3" DIA. DOWNSPOUT.
5 INSTALL (1) 5" SQ. GUTTER AND (3) 3" DIA. DOWNSPOUT.
6 INSTALL 20 FOOT HIGH CAGED METAL LADDER. COLOR TO MATCH ADJACENT METAL PANELS.
7 INSTALL 10 FOOT HIGH METAL LADDER. COLOR TO MATCH ADJACENT METAL PANELS.
8 INSTALL WINDOW UNIT W1 BELOW. PATCH EXISTING INTERIOR DRYWALL AND PLASTER AS REQUIRED. SEE SHEET AD1.05 FOR DEMOLITION DETAIL.
9 RAISE PARAPET TO ACCOMMODATE NEW ROOFING - SEE SHEET A5.51.

ROOF PLAN LEGEND

075216 - WALKING PADS

SP + DS — 076200 - INSTALL THROUGH WALL SCUPPER AND DOWNSPOUT

RD + OF — 076200 - INSTALL ROOF SUMPS, PANS, AND SCUPPER

P — (E) PIPE PENETRATION

E — (E) ELECTRICAL CONDUIT PENETRATION

ROOF SLOPE DIRECTION

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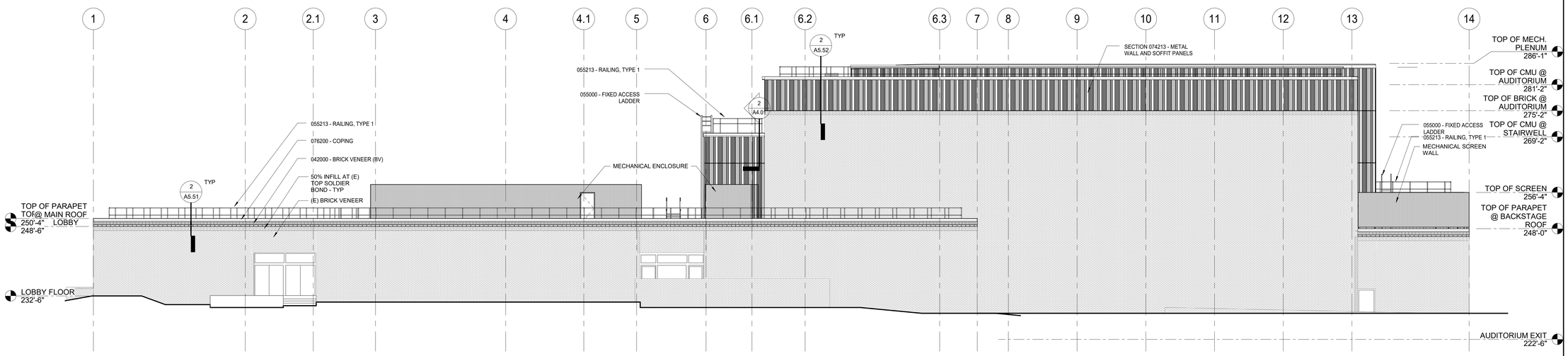
ROOF PLAN - UPPER LEVEL

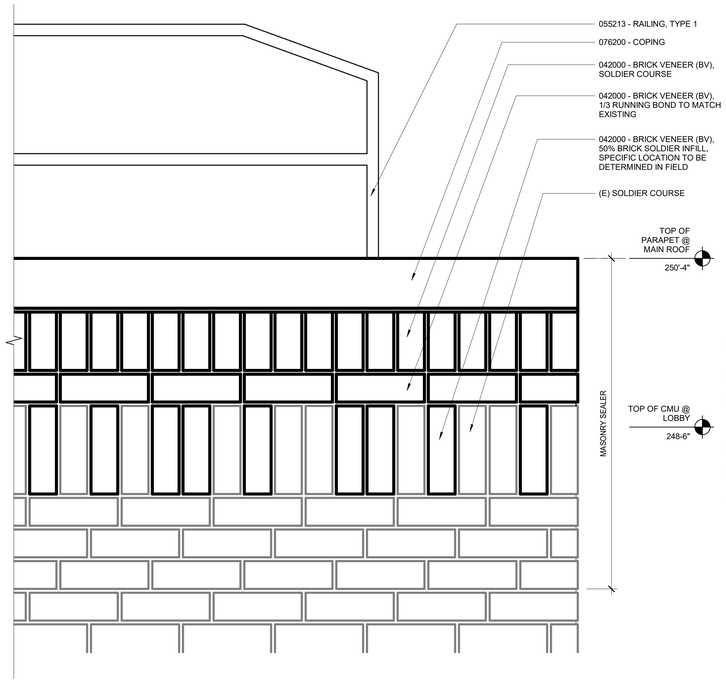
PERMIT SET

A2.02



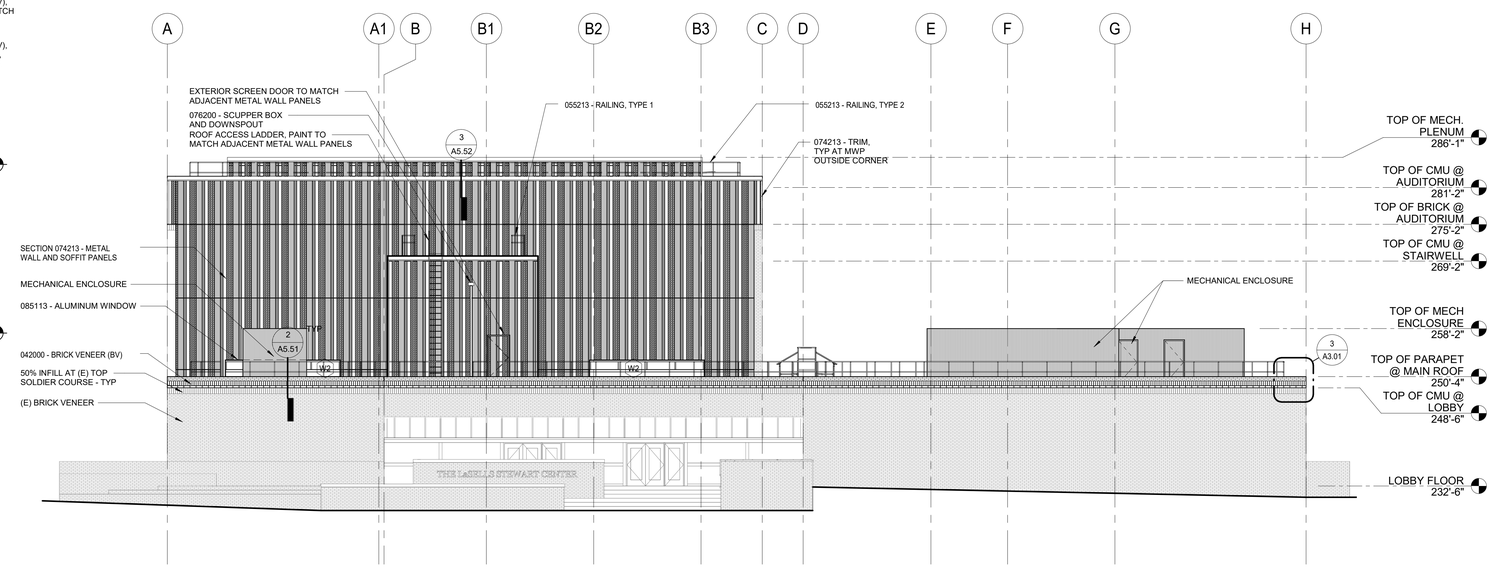
1 COMPOSITE BUILDING ELEVATION - SOUTH

1" = 10'-0"



3 ENLARGED PARAPET ELEVATION

1 1/2" = 1'-0"



2 COMPOSITE BUILDING ELEVATION - WEST

1" = 10'-0"

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COMPOSITE BLDG ELEVATIONS

A3.01

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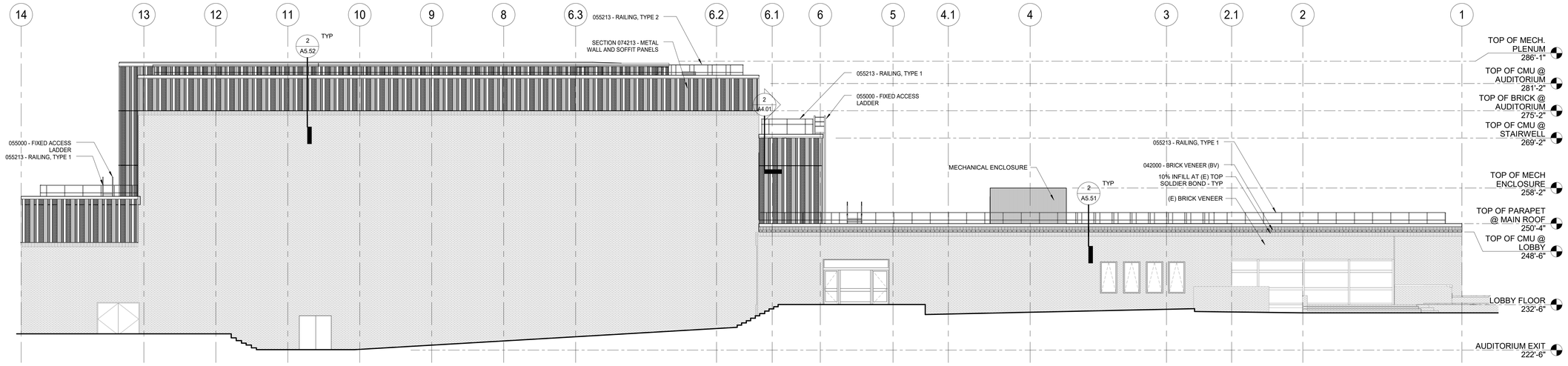
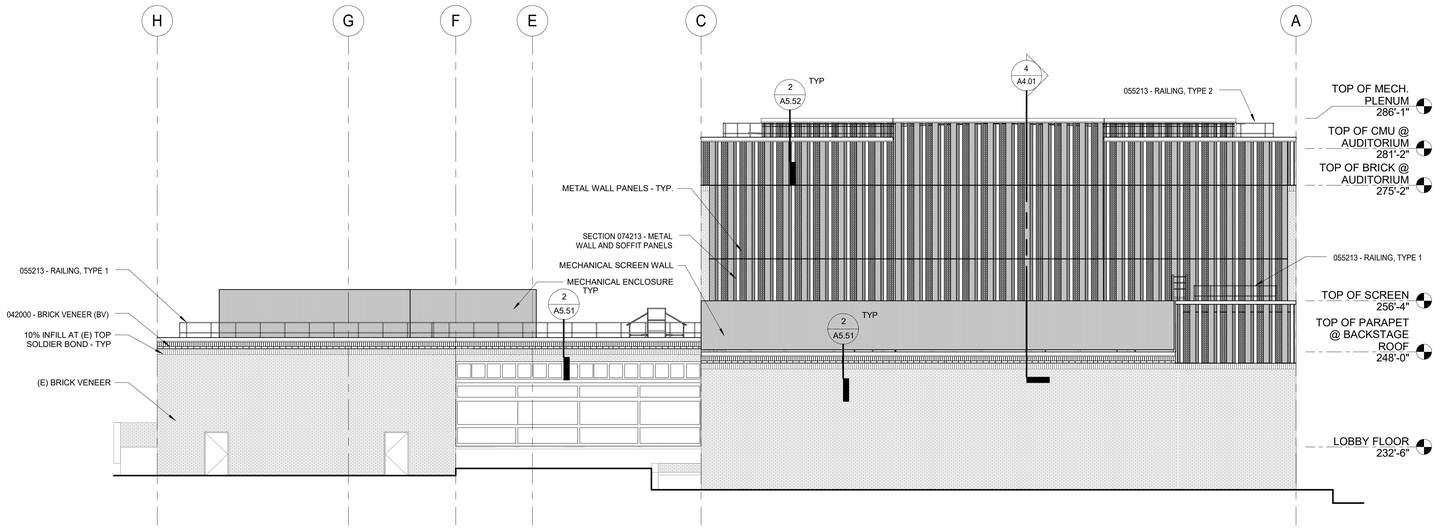
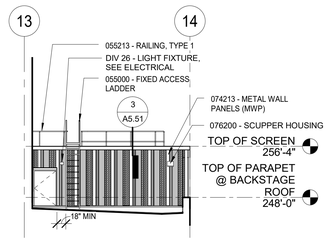


1 COMPOSITE BUILDING ELEVATION - NORTH
1" = 10'-0"



2 COMPOSITE BUILDING ELEVATION - EAST
1" = 10'-0"



2A ELECTRICAL ROOM ELEVATION - SOUTH
1" = 10'-0"

FINISH LEGEND

SPEC SECTION	ELEMENT	LOCATION: MAIN	STAIRWELL	AUDITORIUM	MECH PLENUM	ELEC ROOM	BACK STAGE	MATERIAL	FINISH	COLOR
042000	BRICK VENEER									MATCH EXISTING
054000	STEEL Z SECTION	X					X	COLD APPLIED ZINC PRIMER - SHOP FINISH	PVDF	CUSTOM*
055000	METAL FABRICATIONS									
	NEW STEEL FRAME & SUPPORTS	X					X	COLD APPLIED ZINC PRIMER- SHOP FINISH	PAINT	CUSTOM*
	EXISTING STEEL SUPPORTS	X					X	PAINTED STEEL (FV)	PAINT	CUSTOM*
	STL-1 MECH EQUIP SUPPORTS	X					X	HOT DIPPED GALVANIZED		
	FIXED ACCESS LADDERS AND PLATFORMS	X					X	ALUMINUM	POWDER COAT	CUSTOM*
	SHIP LADDERS AND RETURNS	X					X	ALUMINUM	ANODIZED	CLEAR
055213	PIPE RAILING									
	PIPE RAILING - TYPE 1	X	X					STEEL - GALVANIZED		
	PIPE RAILING - TYPE 2			X		X	X	STEEL - POWDER COAT	POWDER COAT	CUSTOM*
074213	METAL WALL PANEL									
	MWP-1, MWP-2, MWP-3		X	X	X	X		GALV ALUMINUM - SHOP FINISH	PVDF	CUSTOM*
074213	METAL SOFFIT PANEL (MSP)				X			GALV ALUMINUM - SHOP FINISH	PVDF	CUSTOM*
076200	METAL FLASHINGS AND TRIM									
	PARAPET COPING	X	X	X	X	X	X	METALLIC COATED STEEL SHEET		CUSTOM*
	SCUPPER - SALVAGE EXISTING	X					X	COPPER		
	SCUPPER - NEW TO MATCH EXIST		X	X		X		METALLIC COATED STEEL SHEET		CUSTOM*
	GUTTER				X			PREFINISHED ALUMINUM	PVDF	CUSTOM*
	DOWNSPOUT - SALVAGE EXISTING	X					X	COPPER		
	DOWNSPOUT - NEW MATCH EXIST		X	X	X	X		METALLIC COATED STEEL SHEET		CUSTOM*
	SILL PANS - WINDOWS	X	X					STAINLESS STEEL	BRUSH	
085113	WINDOWS	X	X					ALUMINUM	POWDER COAT	CUSTOM*
086200	SKYLIGHTS	X						ALUMINUM	ANODIZED	CLEAR
077200	SAFETY RAILING SYSTEM									
	ROOF HATCH			X				STEEL - GALVANIZED		
	SMOKE VENTS			X				STEEL - GALVANIZED		
	SKYLIGHTS	X						STEEL - POWDER COAT	POWDER COAT	CUSTOM*
118129	FALL RESTRAINT TIE BACK ANCHORS				X			STEEL - GALVANIZED		

NOTES

* CUSTOM COLOR AS SELECTED BY ARCHITECT. ELEMENTS LISTED WITH CUSTOM COLOR SHALL MATCH METAL WALL PANEL FINISH COLOR.

1. SEE SPECIFICATIONS FOR DETAILED MATERIAL AND FINISH INFORMATION.

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COMPOSITE BLDG ELEVATIONS

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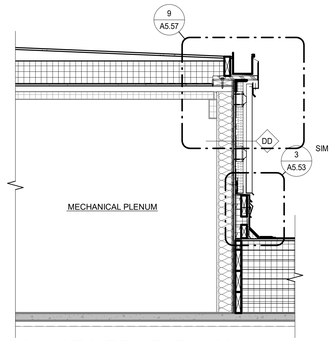
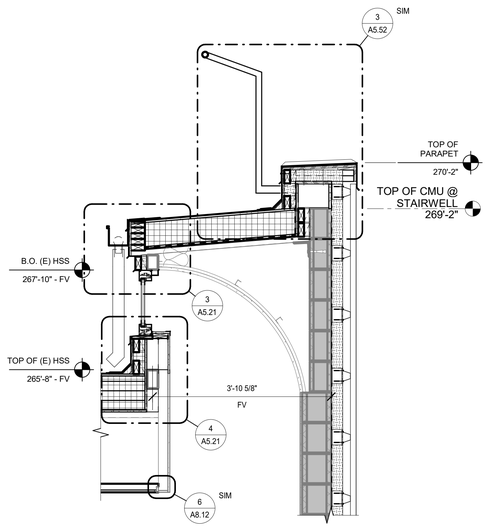
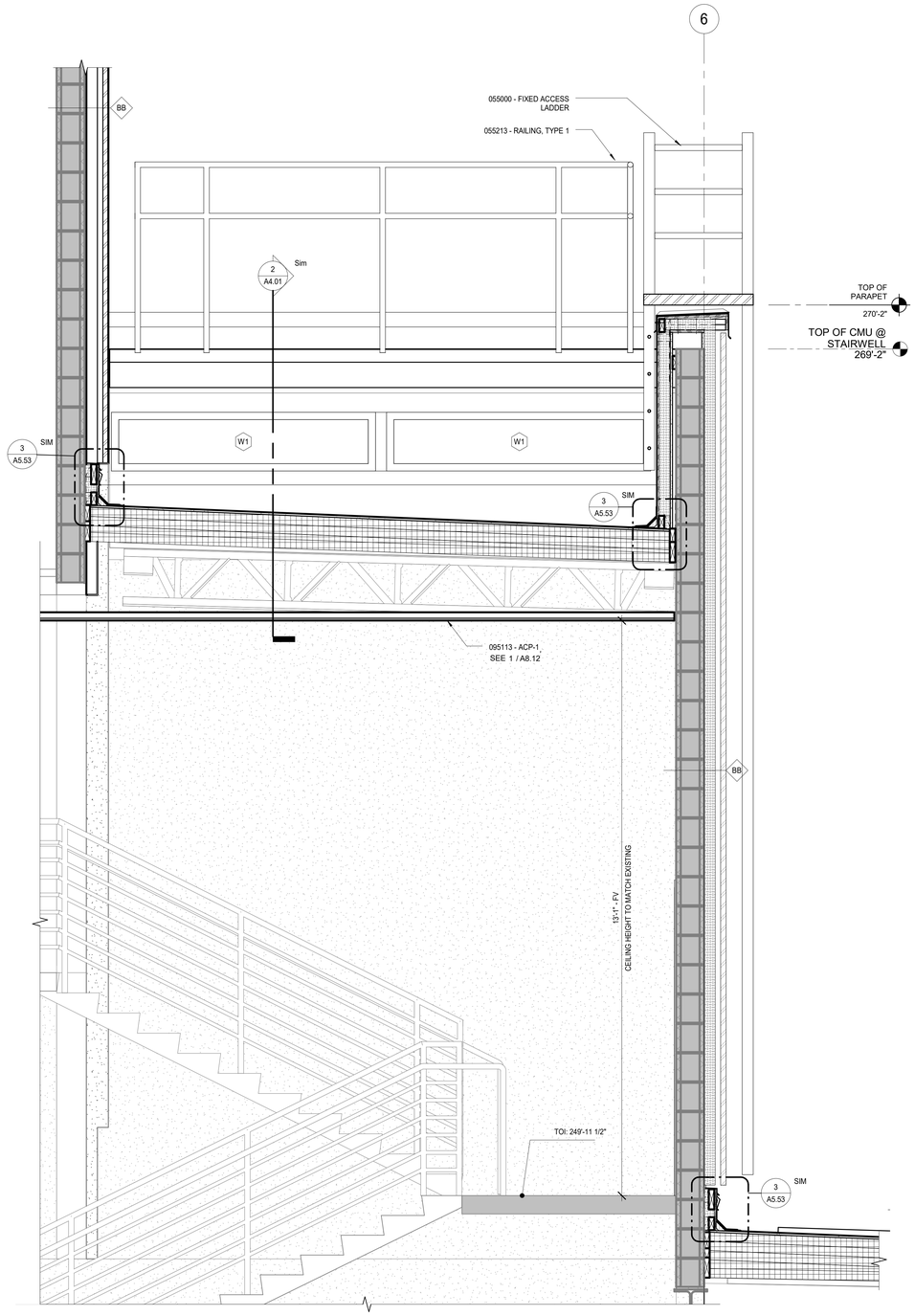


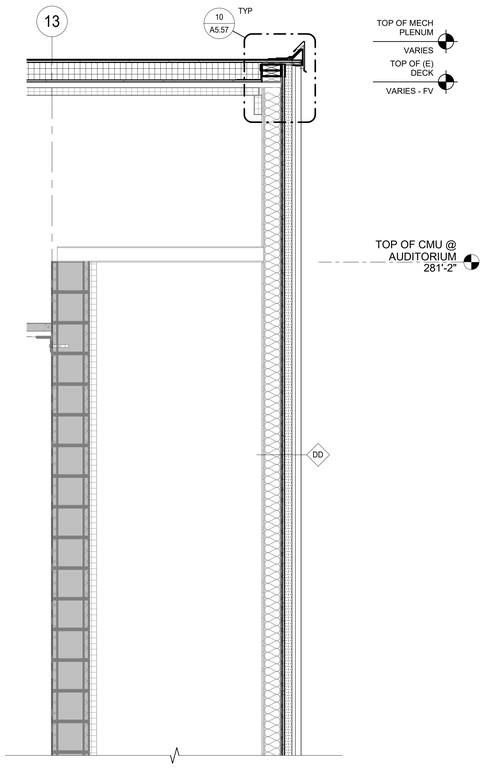
1 TYP WALL AT MECH PLENUM
3/4" = 1'-0"

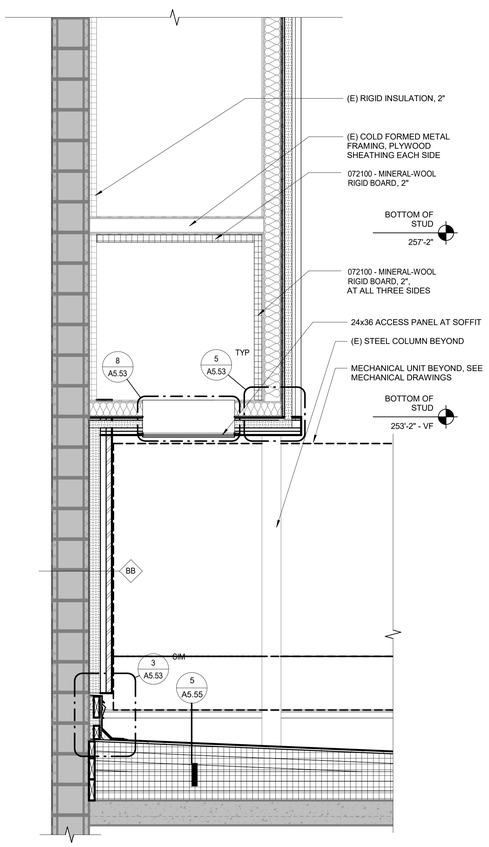


2 TYP STAIRWELL ROOF SECTION
3/4" = 1'-0"



3 WALL SECTION AT STAIRWELL
3/4" = 1'-0"





4 MECHANICAL PLENUM OVERHANG
3/4" = 1'-0"

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WALL SECTIONS

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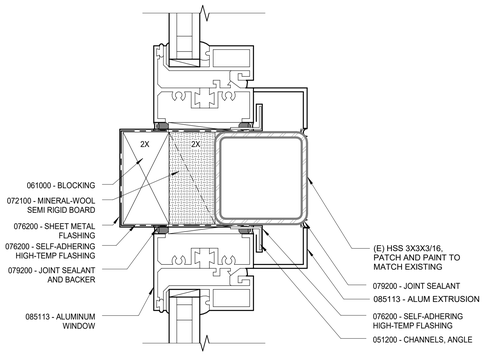
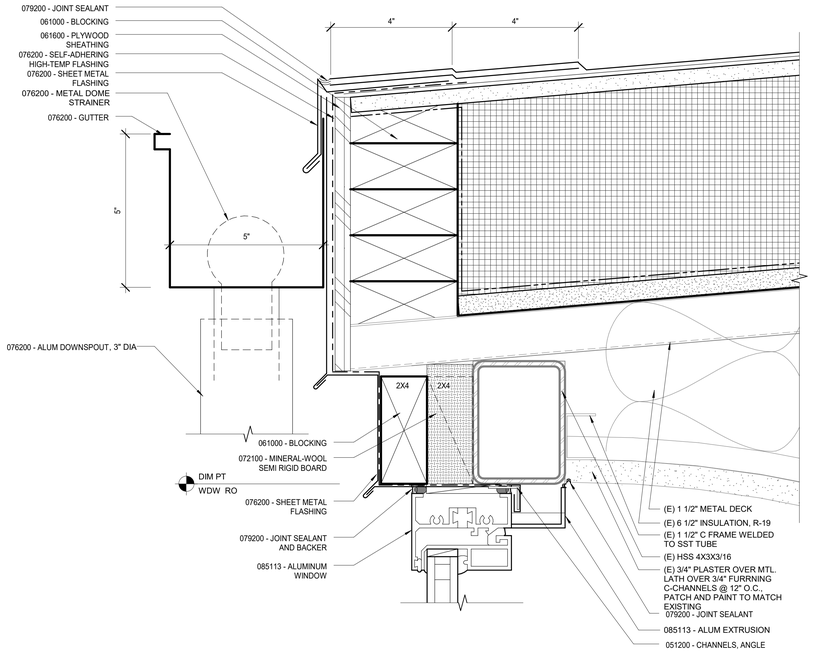
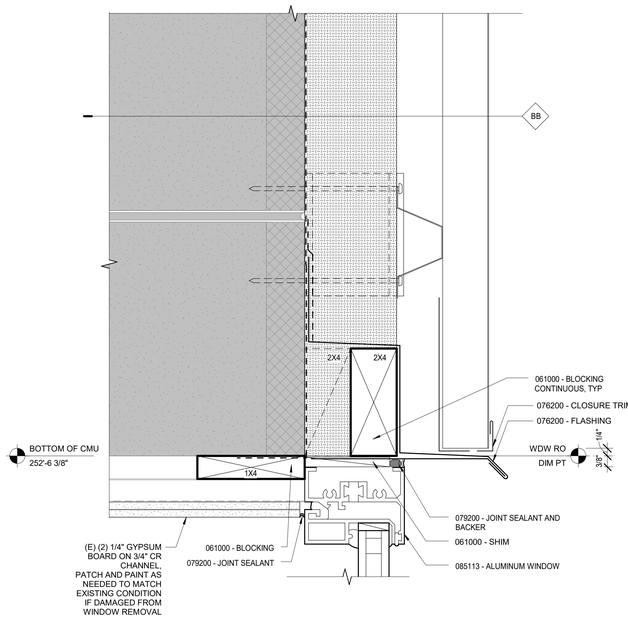


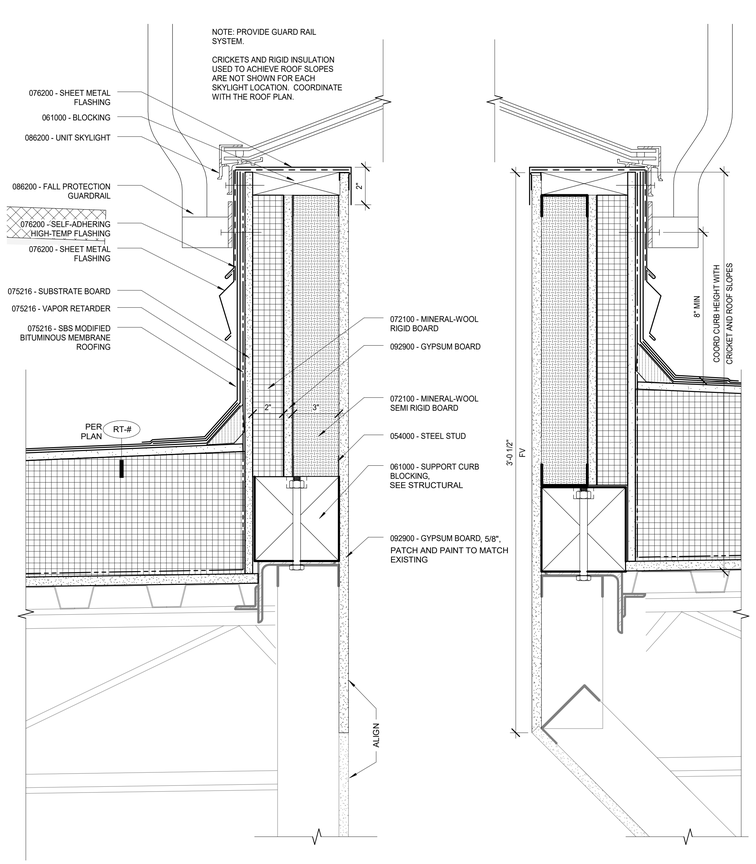
5 WINDOW JAMB AT STAIRWELL ROOF
6" = 1'-0"



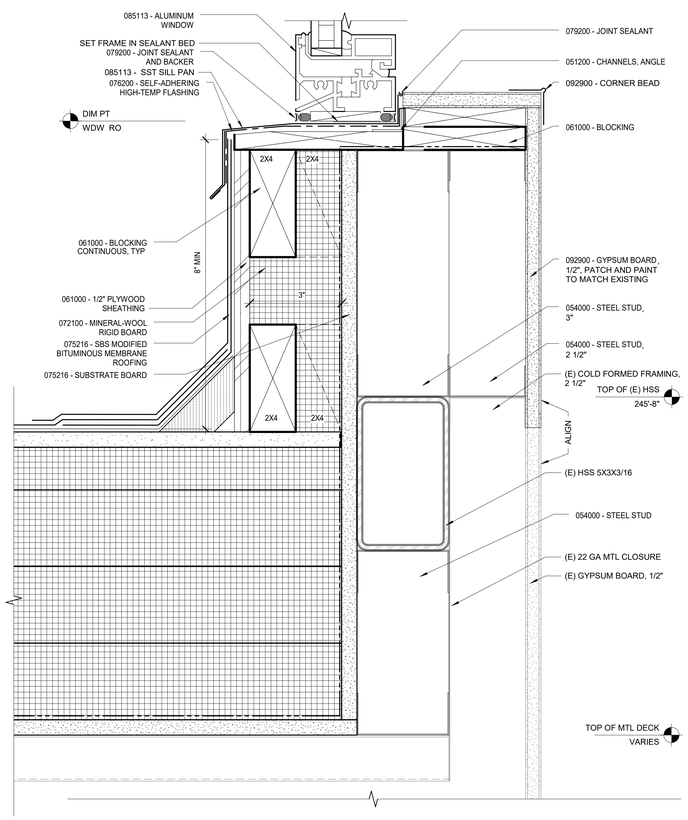
3 WINDOW HEAD AT STAIRWELL ROOF
6" = 1'-0"



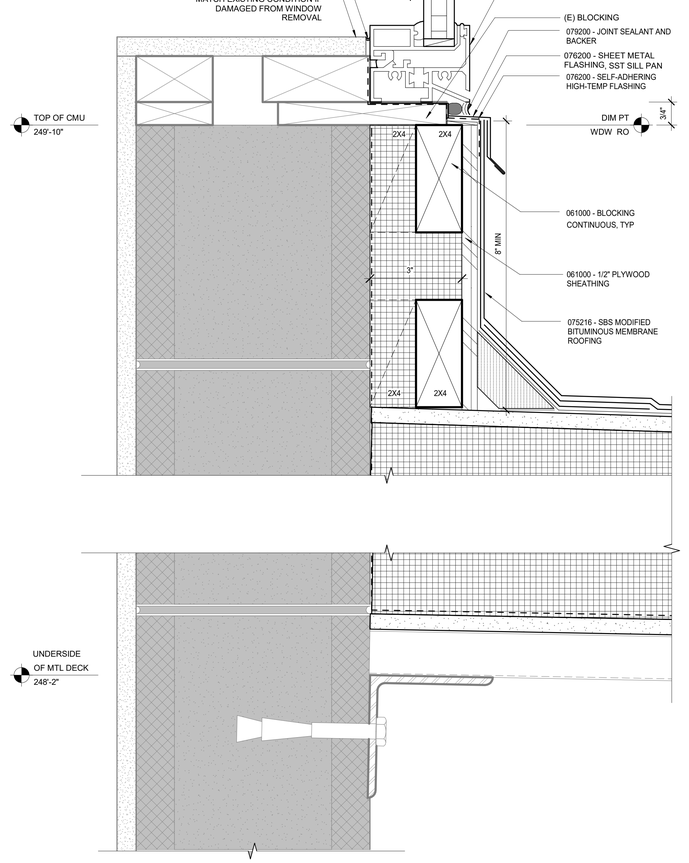
1 WINDOW HEAD AT AUDITORIUM
6" = 1'-0"



6 TYP SECTION AT SKYLIGHT
3" = 1'-0"



4 WINDOW SILL AT STAIRWELL ROOF
6" = 1'-0"



2 WINDOW SILL AT AUDITORIUM
6" = 1'-0"

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EXTERIOR WINDOW DETAILS

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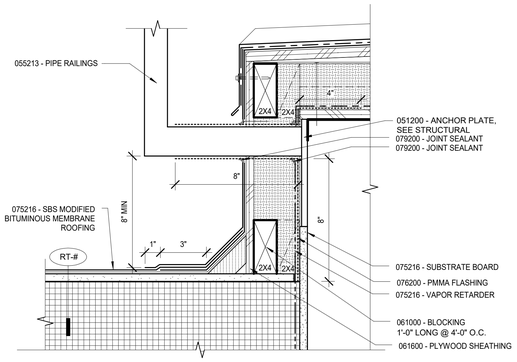
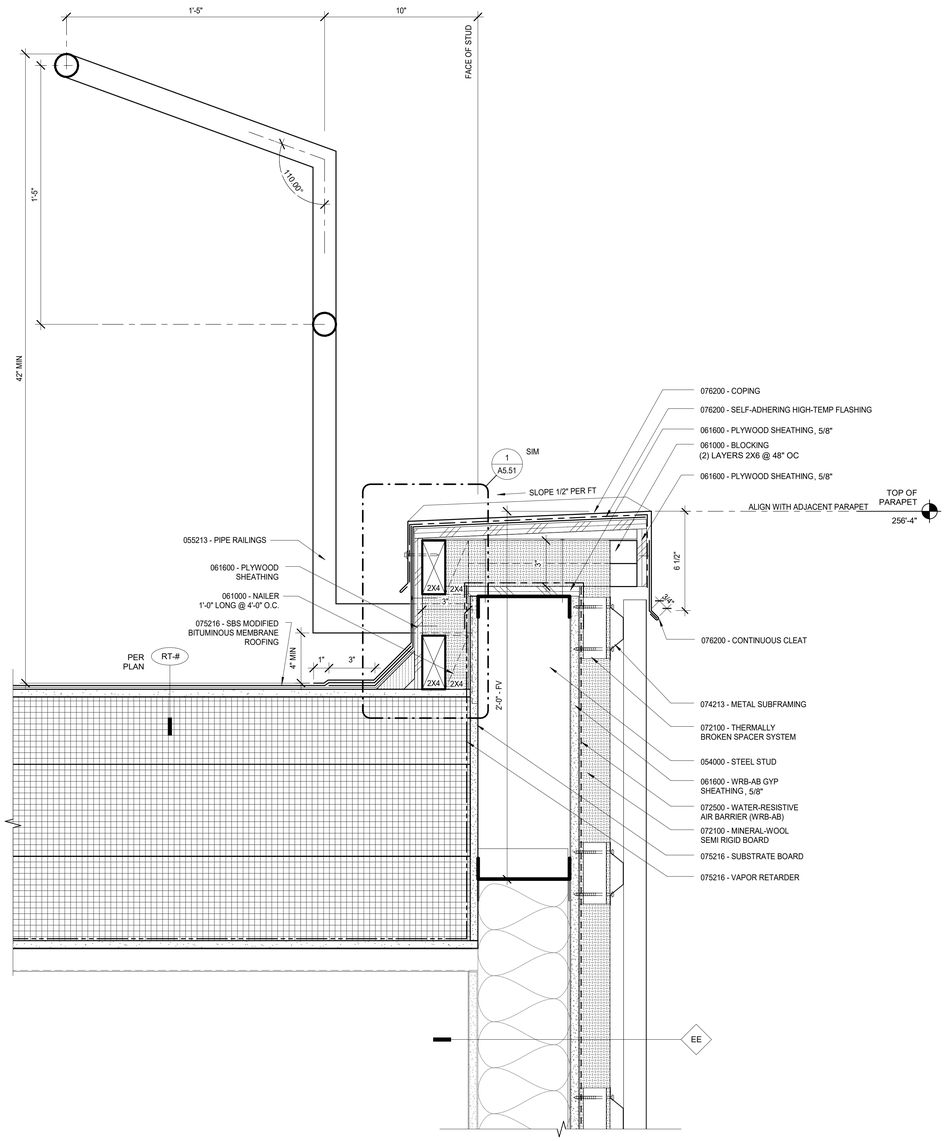
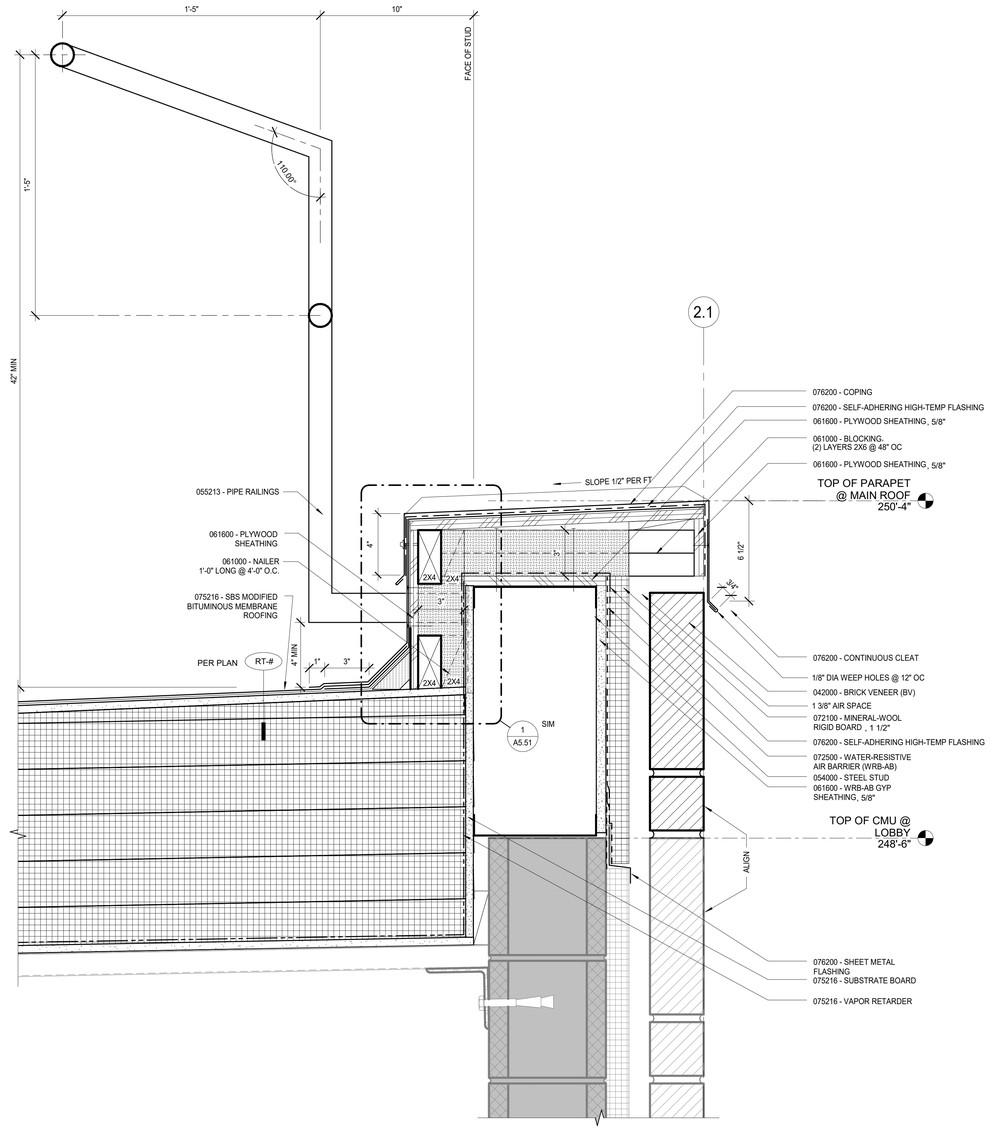


1 TYP RAILING TO PARAPET ATTACHMENT
3" = 1'-0"



3 SOUTH PARAPET AT ELECTRICAL ROOM ROOF
3" = 1'-0"



2 TYP PARAPET AT MAIN ROOF
3" = 1'-0"

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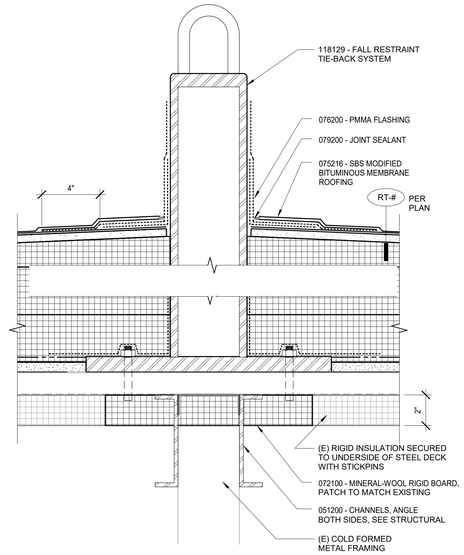
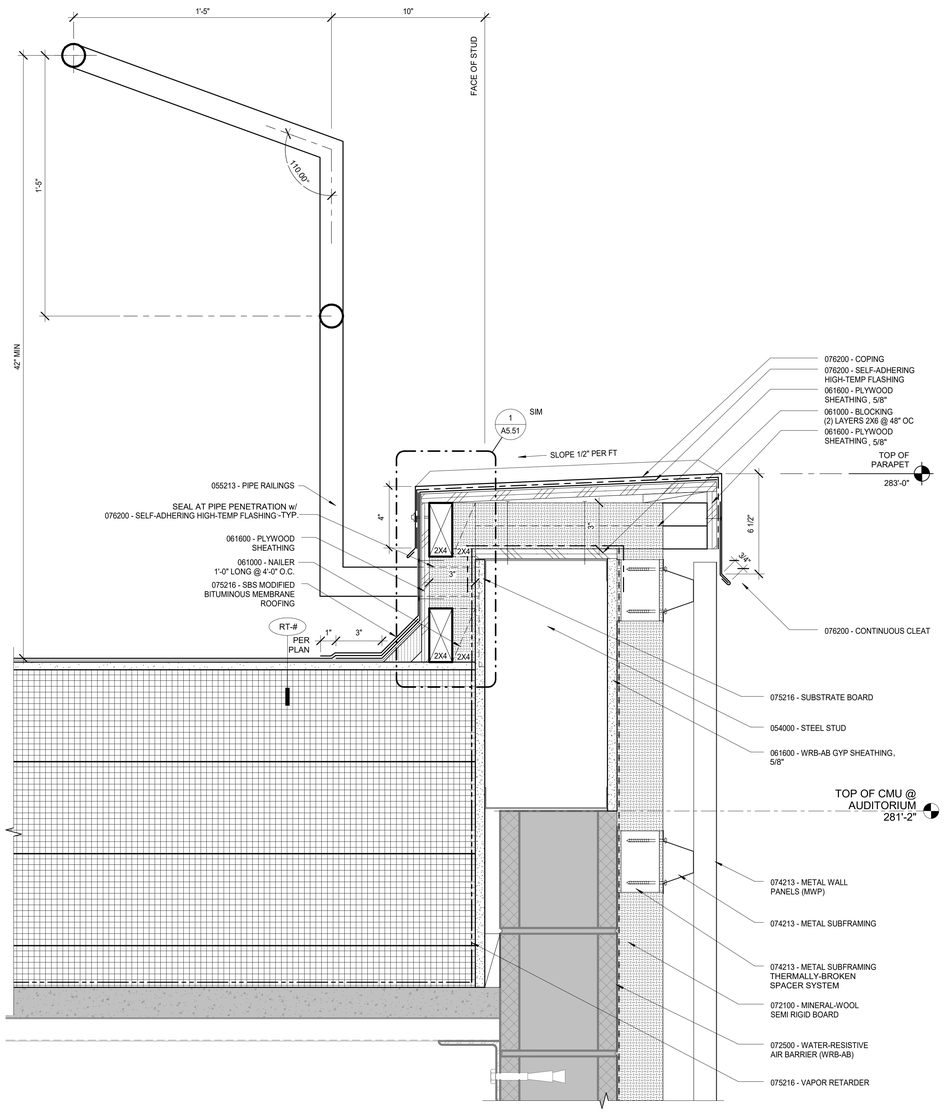
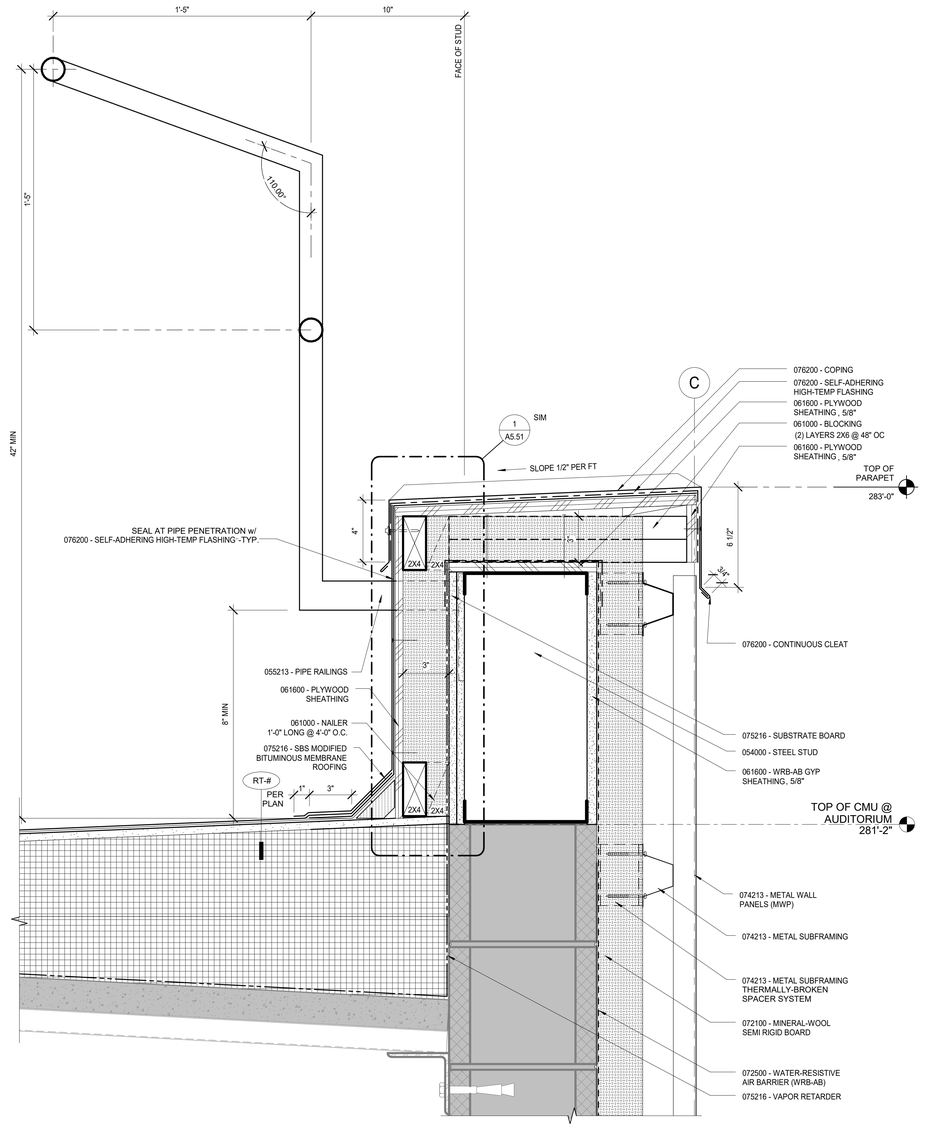


1 TYP FALL RESTRAINT ANCHOR
3" = 1'-0"



3 TYP PARAPET AT AUDITORIUM WEST
3" = 1'-0"



2 TYP PARAPET AT AUDITORIUM
3" = 1'-0"

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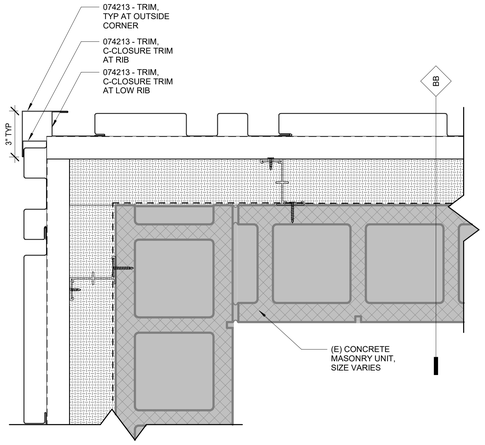
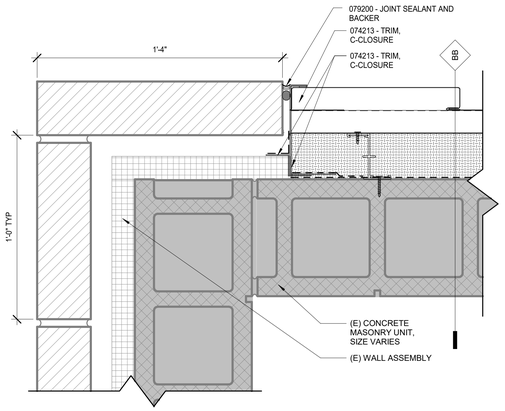
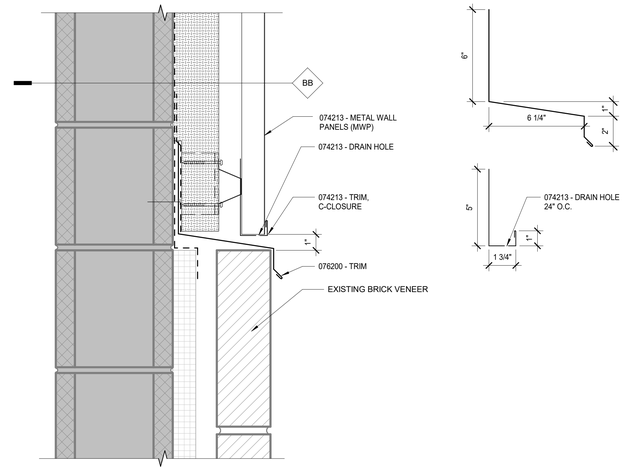


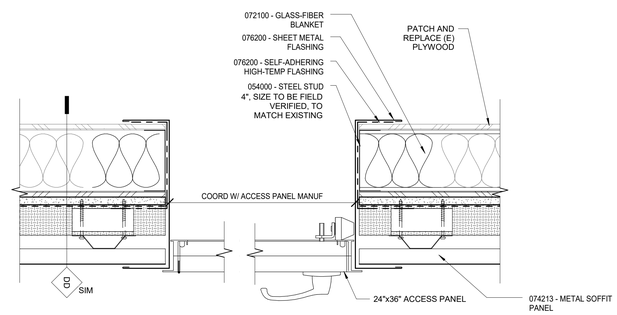
7 MWP OUTSIDE CORNER TRANSITION - PLAN VIEW
3" = 1'-0"



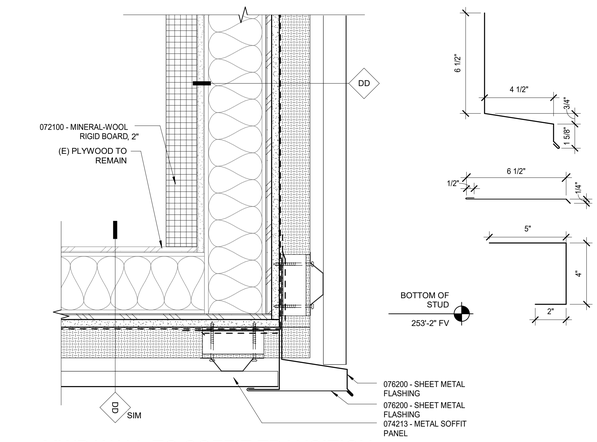
4 BRICK TO MWP TRANSITION - PLAN VIEW
3" = 1'-0"



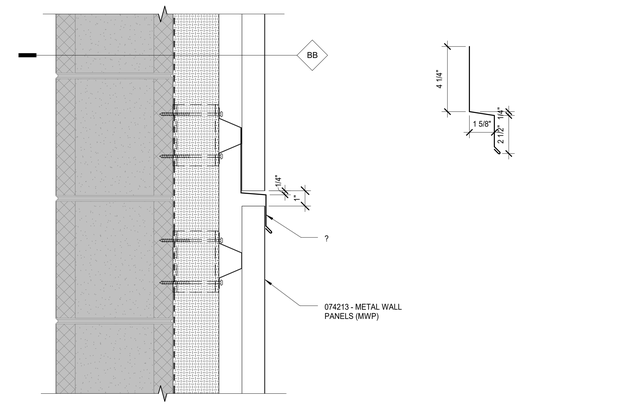
1 TYP HORIZONTAL JOINT MWP TO BRICK
3" = 1'-0"



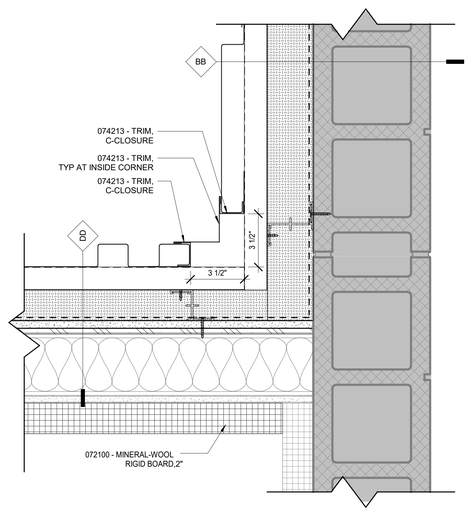
8 ACCESS PANEL AT MWP SOFFIT
3" = 1'-0"



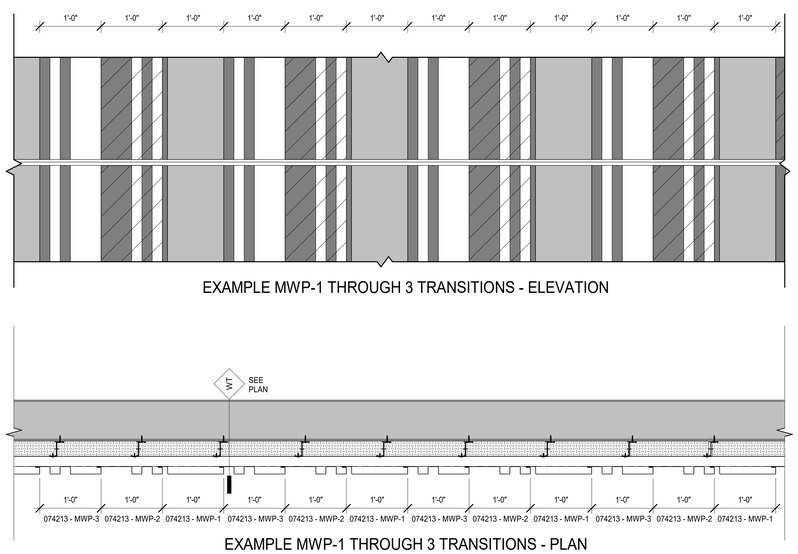
5 MWP WALL TO SOFFIT TRANSITION
3" = 1'-0"



2 TYP HORIZONTAL JOINT AT MWP
3" = 1'-0"



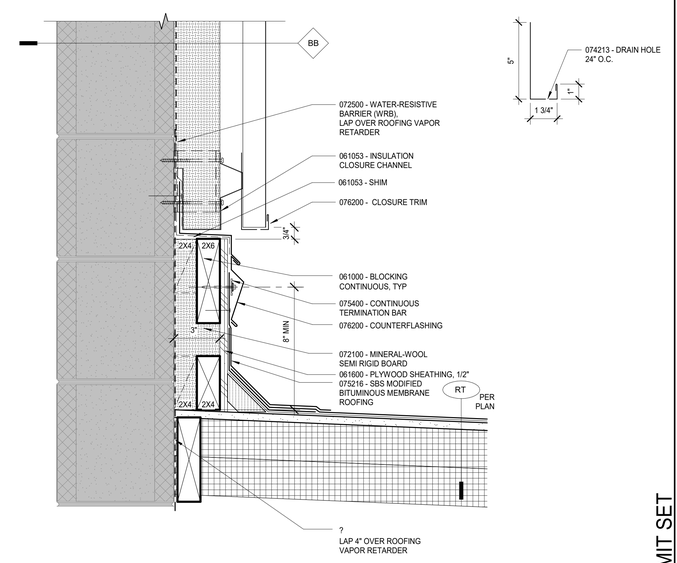
9 MWP INSIDE CORNER TRANSITION - PLAN VIEW
3" = 1'-0"



EXAMPLE MWP-1 THROUGH 3 TRANSITIONS - ELEVATION

EXAMPLE MWP-1 THROUGH 3 TRANSITIONS - PLAN

6 TYP MWP SEQUENCE
1" = 1'-0"



3 TYP ROOF FLASHING AT MWP
3" = 1'-0"

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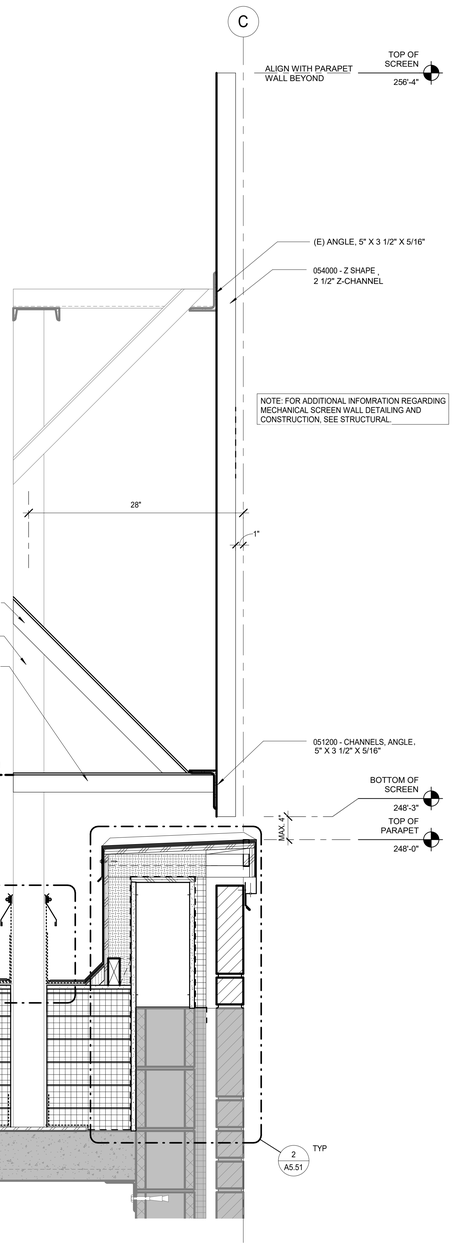
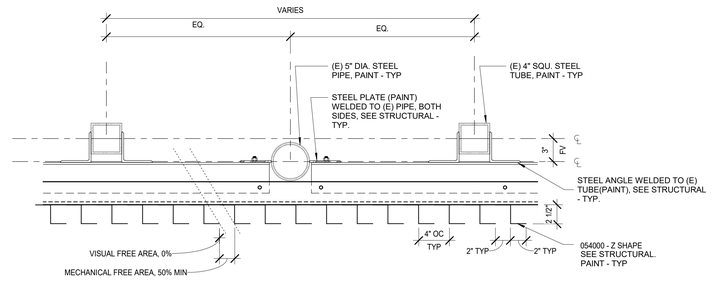
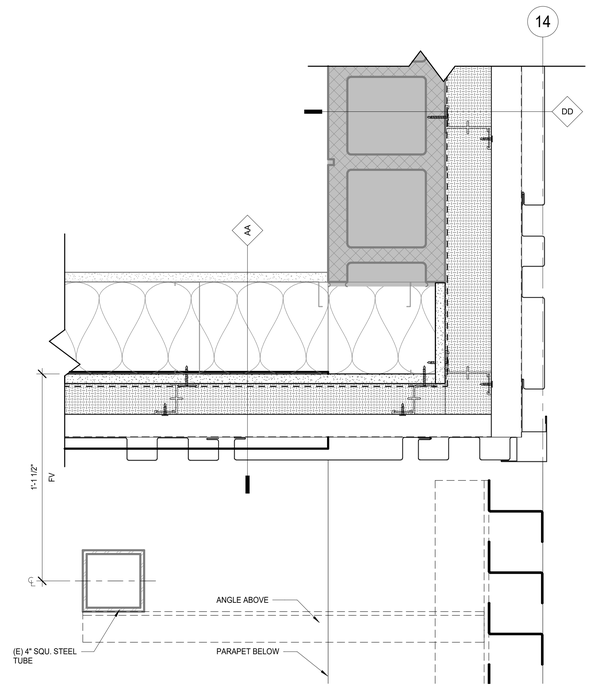


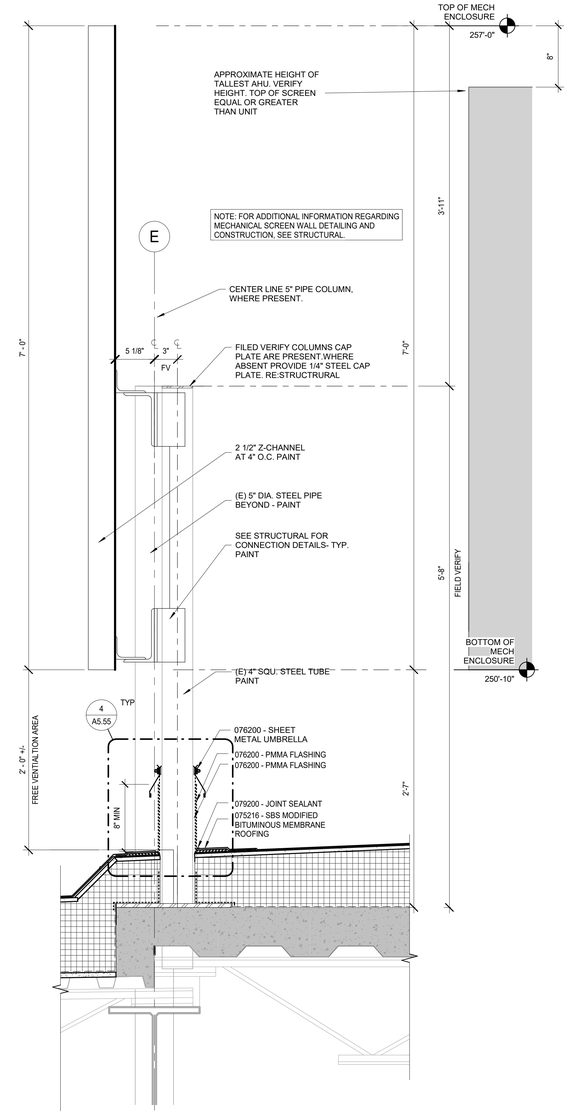
8 TYP SCREEN WALL AT MECH BACKSTAGE ROOF
1 1/2" = 1'-0"



5 TYP MECHANICAL ENCLOSURE - PLAN VIEW
1 1/2" = 1'-0"



6 MECH. SCREEN TO MWP TRANSITION - PLAN VIEW
3" = 1'-0"



2 TYP MECHANICAL ENCLOSURE
1 1/2" = 1'-0"

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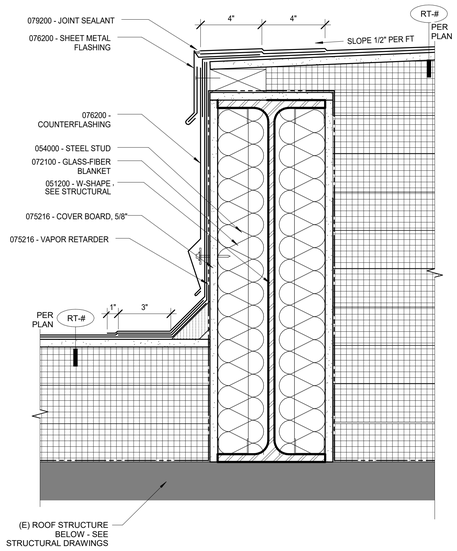
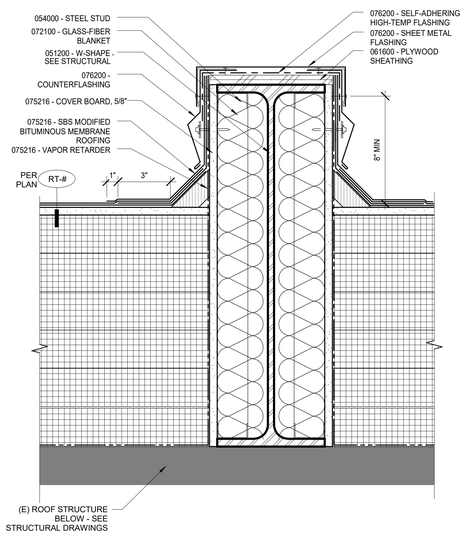
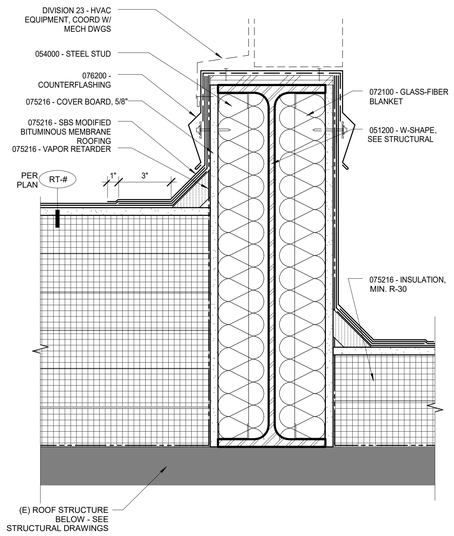


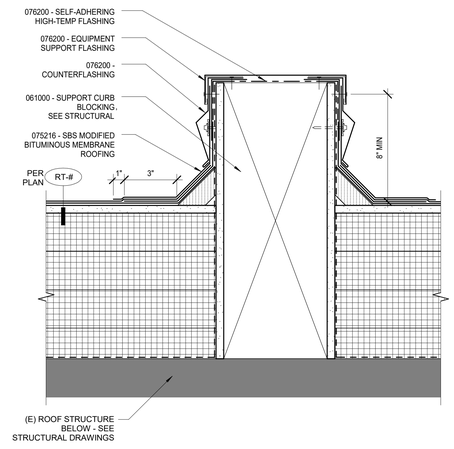
10 TYP RAISED ROOF TRANSITION
3" = 1'-0"



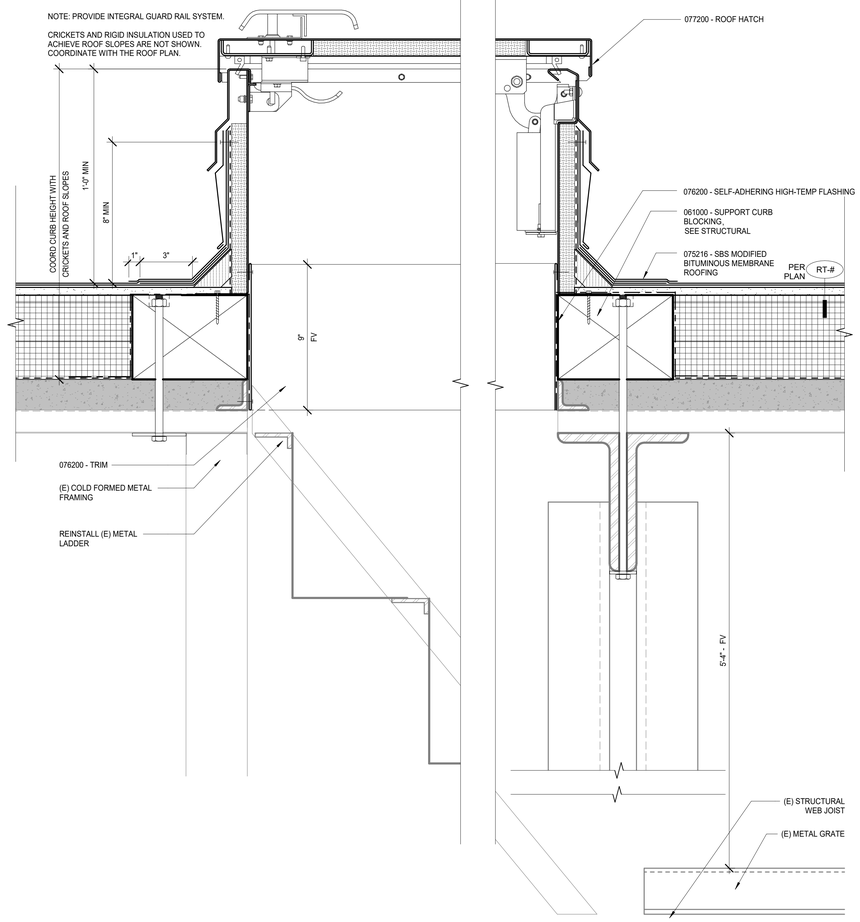
8 TYP CURB AT WF BEAM
3" = 1'-0"



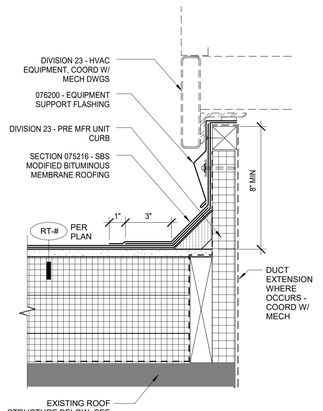
5 TYP EQUIPMENT CURB AT WF BEAM
3" = 1'-0"



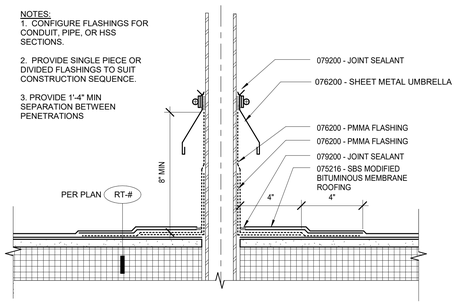
1 TYP EQUIPMENT CURB
3" = 1'-0"



9 TYP ROOF HATCH
3" = 1'-0"



2 TYP PRE-MANUF EQUIPMENT CURB
3" = 1'-0"



4 TYP PIPE/ CONDUIT PENETRATION FLASHING
3" = 1'-0"

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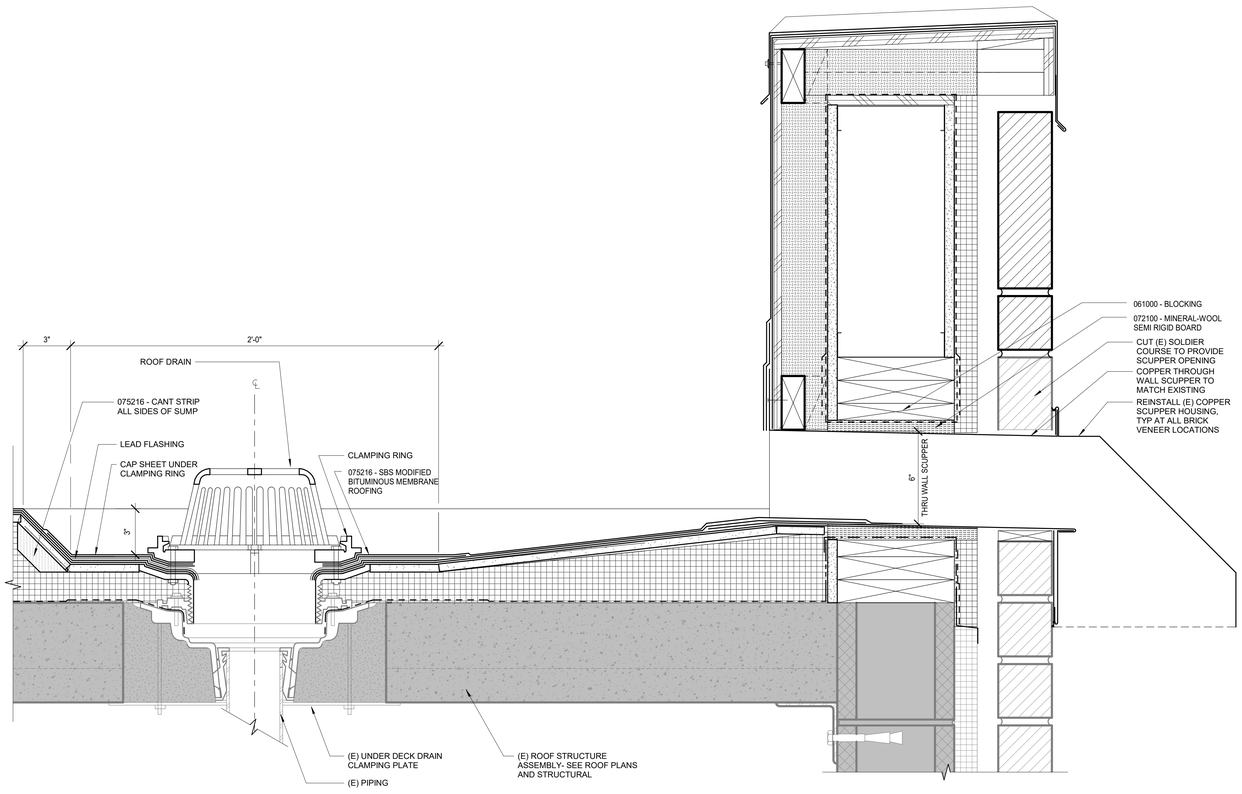
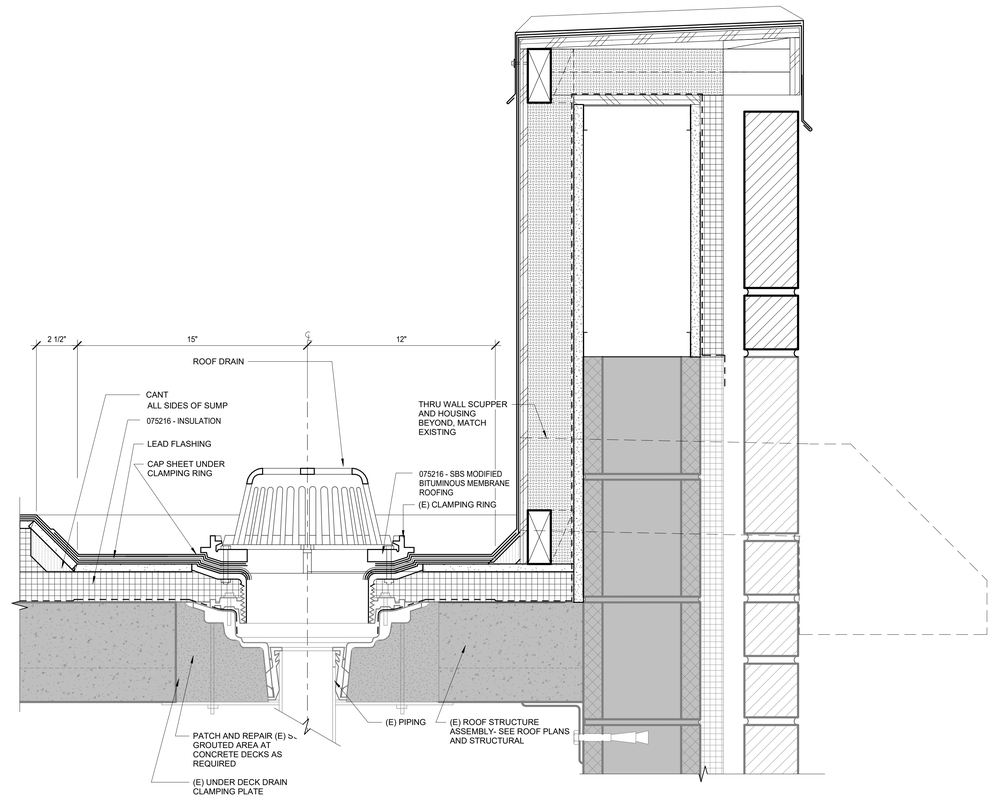


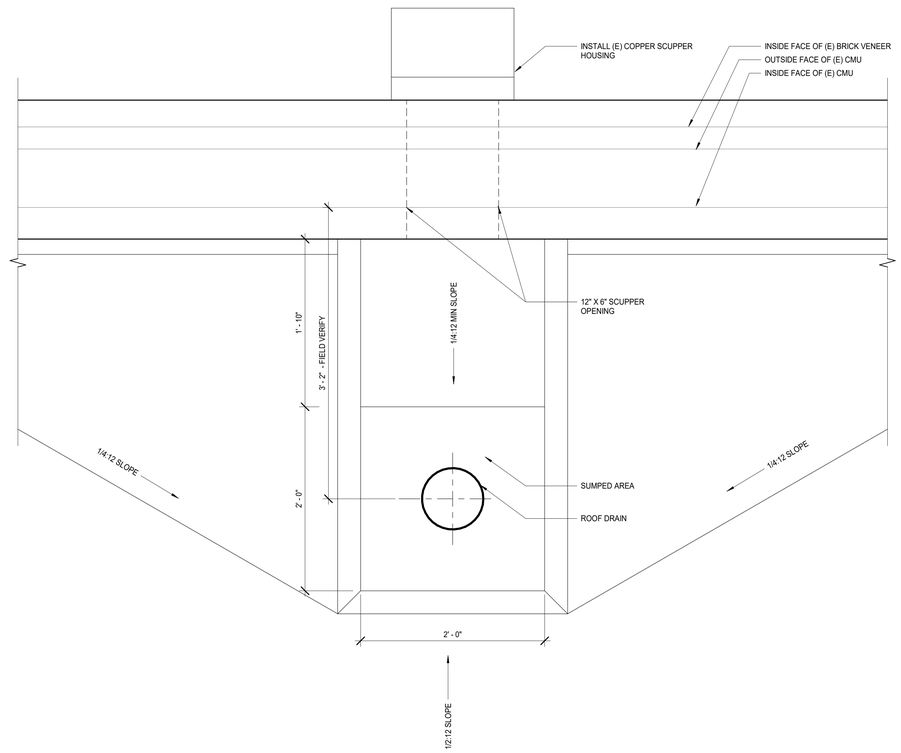
3 TYP ROOF DRAIN AT BACKSTAGE ROOF - SECTION

3" = 1'-0"



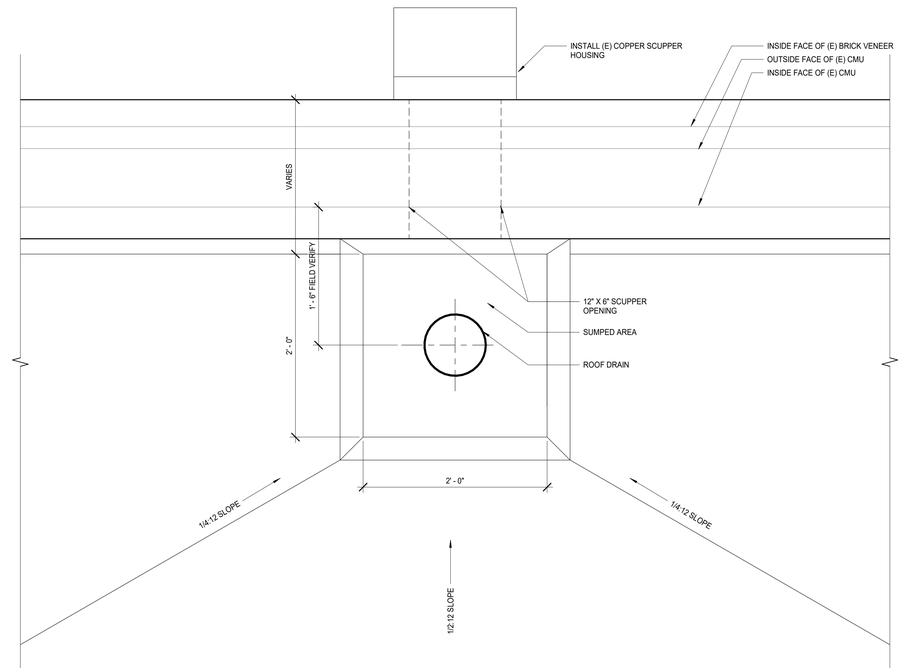
1 TYP ROOF DRAIN - SECTION

3" = 1'-0"



4 TYP ROOF DRAIN AT BACKSTAGE ROOF - PLAN VIEW

1 1/2" = 1'-0"



2 TYP ROOF DRAIN - PLAN VIEW

1 1/2" = 1'-0"

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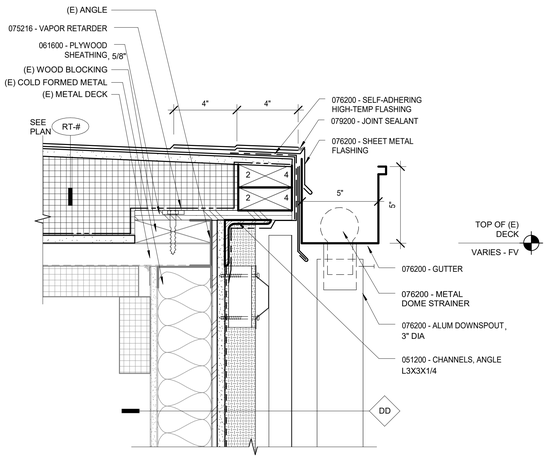
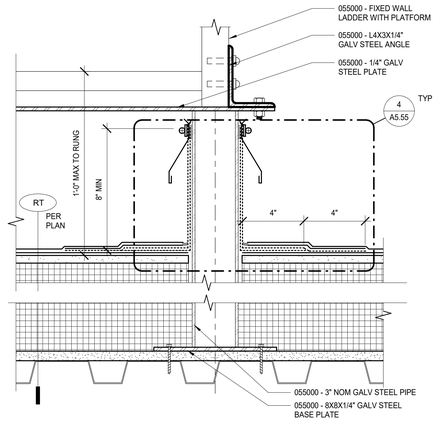
EXTERIOR DETAILS

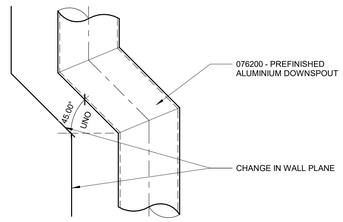
A5.56



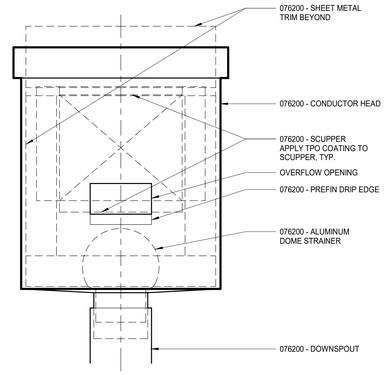
9 TYP GUTTER AT MECH PLENUM
3" = 1'-0"



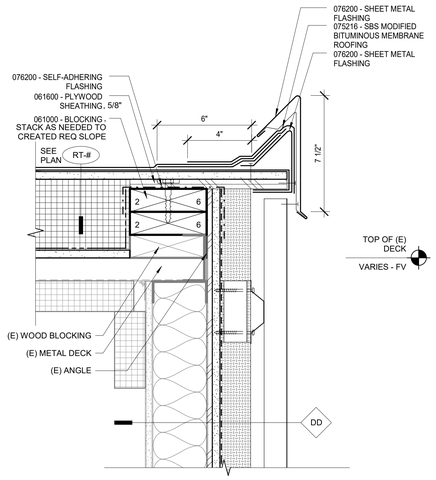
6 LADDER ROOF SUPPORT
3" = 1'-0"



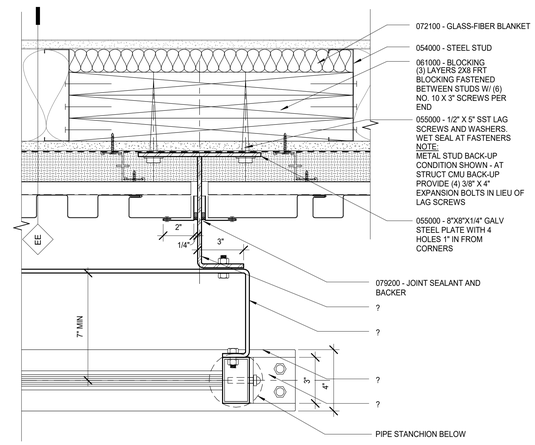
4 TYP DOWNSPOUT TRANSITION
3" = 1'-0"



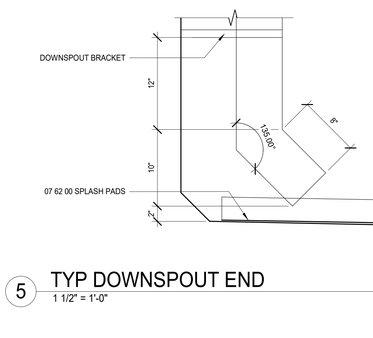
1 CONDUCTOR HEAD ELEVATION
3" = 1'-0"



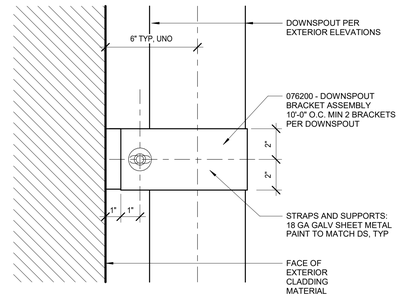
10 TYP ROOF EDGE AT MECH PLENUM
3" = 1'-0"



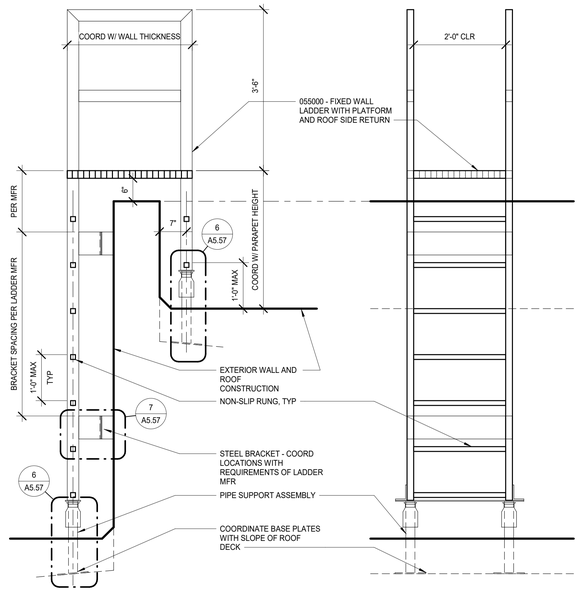
7 LADDER WALL BRACKET
3" = 1'-0"



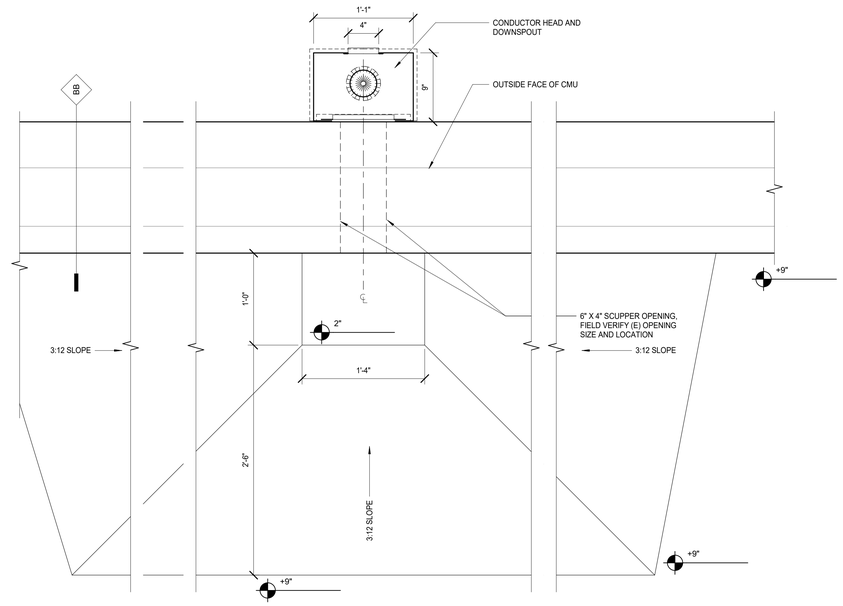
5 TYP DOWNSPOUT END
1 1/2" = 1'-0"



2 TYP DOWNSPOUT BRACKET ELEVATION
3" = 1'-0"



8 FIXED WALL LADDER WITH PARAPET RETURN
3/4" = 1'-0"



3 SCUPPER AT STAIRWELL ROOF - PLAN VIEW
1 1/2" = 1'-0"

bassetti architects
721 NW 9th Ave, Suite 350
Portland, Oregon 97209
T (503) 224 9162
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

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CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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Oregon State University

LSC Mech & Roof Renewal

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CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2021

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REGISTERED ARCHITECT
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PORTLAND, OREGON
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EXTERIOR DETAILS

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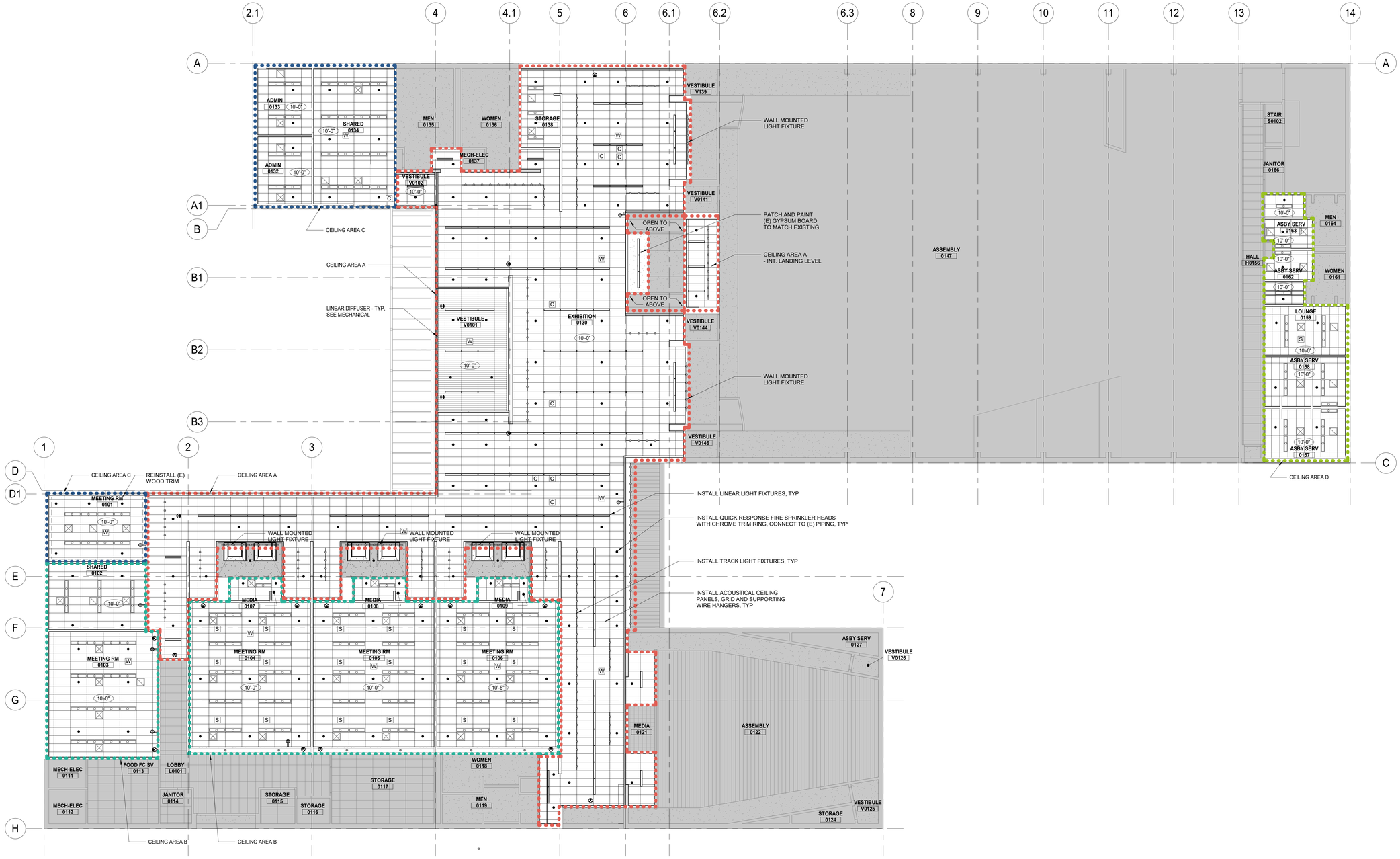

1 REFLECTED CEILING PLAN - LOWER LEVEL

1" = 10'-0"

0' 5' 10'

CEILING NOTES

1. ALL CEILING SUSPENSION SYSTEMS SHALL HAVE SEISMIC RESTRAINTS THAT COMPLY WITH APPLICABLE CODES AND ORDINANCES IN FORCE AT TIME OF CONSTRUCTION.
2. LIGHT FIXTURES AND ELECTRICAL EQUIPMENT, MECHANICAL DIFFUSERS/GRILLES SHOWN FOR LOCATION AND ORIENTATION ONLY. REFER TO ELECTRICAL AND MECHANICAL DRAWINGS FOR QUANTITIES AND ADDITIONAL INFORMATION. FOR CEILING LAYOUT CRITERIA SEE DETAIL 5 / A8.12.
3. FIRE SPRINKLER SYSTEM SHOWN FOR LAYOUT PURPOSES ONLY. MODIFICATIONS TO SPRINKLER SYSTEM TO BE DELEGATED DESIGN.

RCP LEGEND

- HT — CEILING HEIGHT
- ACP-1
- ACP-2
- (E) GYPSUM BOARD TO REMAIN
- (E) CEILING AREA - NOT IN SCOPE
- LINEAR LIGHT FIXTURE, REFER TO ELECTRICAL DRAWINGS FOR TYPE
- RECTANGULAR LIGHT FIXTURE, REFER TO ELECTRICAL DRAWINGS FOR TYPE
- TRACK LIGHT FIXTURE, REFER TO ELECTRICAL DRAWINGS FOR TYPE
- REINSTALL (E) SST COVER PLATE AT (E) CEILING MOUNTED ELECTRICAL OUTLET, REFER TO ELECTRICAL DRAWINGS
- C — REINSTALL (E) CEILING MOUNTED SECURITY CAMERA
- W — REINSTALL (E) CEILING MOUNTED WIRELESS ACCESS POINT - OFCI
- S — REINSTALL (E) CEILING MOUNTED AUDIO SPEAKER
- REINSTALL (E) CEILING MOUNTED EXIT SIGN, REFER TO ELECTRICAL
- REINSTALL (E) WALL MOUNTED EXIT SIGN, REFER TO ELECTRICAL
- SUPPLY AIR DIFFUSER, SEE MECHANICAL DRAWINGS FOR TYPE
- RETURN AIR GRILLE, SEE MECHANICAL DRAWINGS FOR TYPE
- INSTALL QUICK RESPONSE FIRE SPRINKLER HEADS WITH CHROME TRIM RING, CONNECT TO (E) PIPING. LOCATIONS SHOWN FOR LAYOUT PURPOSES ONLY.

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721 NW 9th Ave, Suite 350
Portland, Oregon 97209
T (503) 224 9162
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Portland, OR 97204
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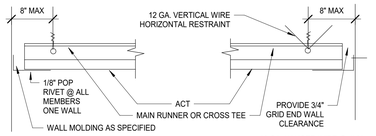
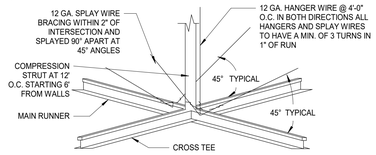
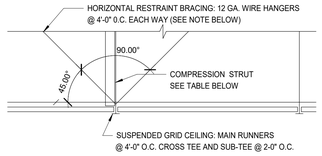
RCP - LOWER LEVEL

A8.11





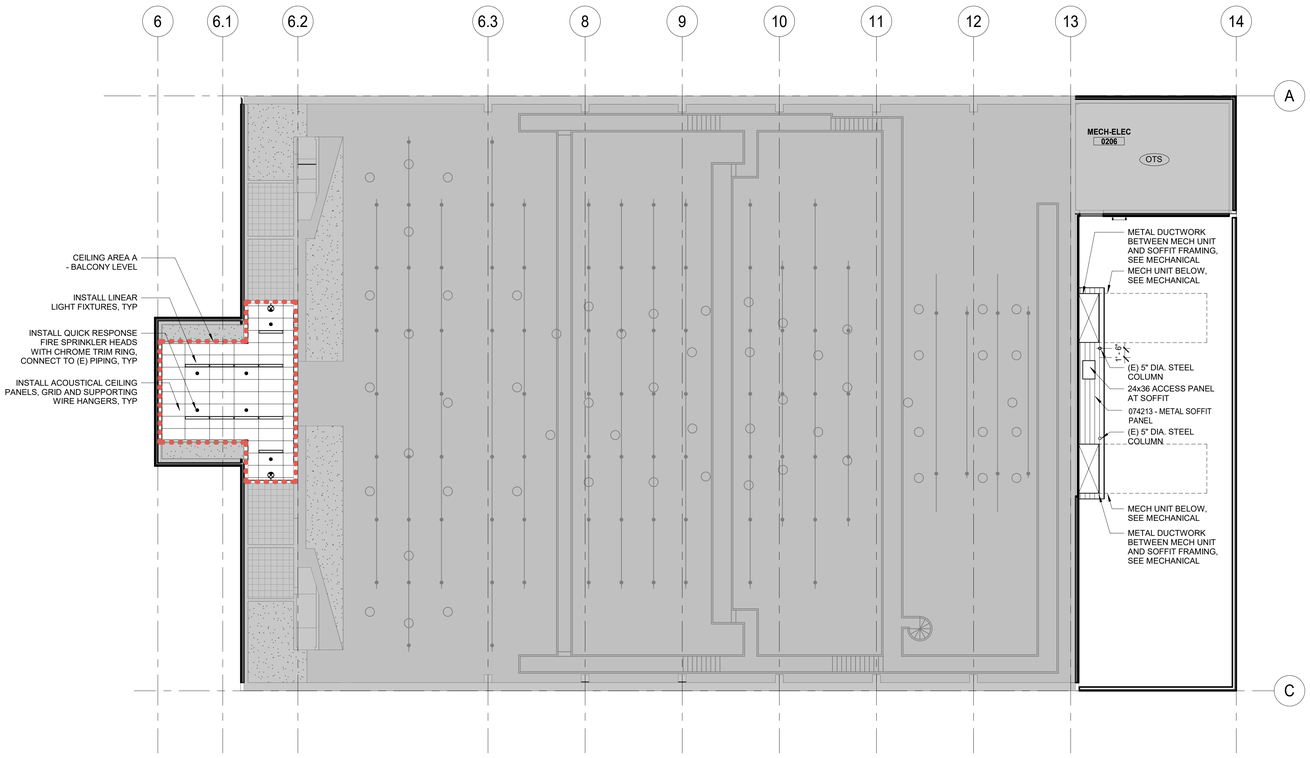


NOTE: LATERAL FORCE BRACING MEMBERS SHALL BE SPACED A MINIMUM OF 6 INCHES FROM ALL HORIZONTAL PIPING OR DUCTWORK THAT IS NOT PROVIDED WITH BRACING RESTRAINTS FOR HORIZONTAL FORCES. BRACING WIRES SHALL BE ATTACHED TO THE GRID AND TO THE STRUCTURE IN SUCH A MANNER THAT THEY CAN SUPPORT A DESIGN LOAD OF NOT LESS THAN 200 LBS. OR THE ACTUAL LOAD, WHICH EVER IS GREATER, WITH A SAFETY FACTOR OF 2.

COMPRESSION STRUT TABLE

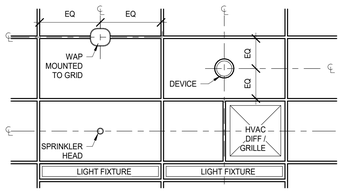
LENGTH OF STRUT	TYPE	DESCRIPTION
0" TO 8'-0"	A	1 - 3 5/8" x 25 GA. MET. STUD
8'-1" TO 10'-0"	B	2 - 1 5/8" x 25 GA. MET STUDS W/ SHEET MET. SCREWS @ 12" O.C.
10'-1" TO 15'-0"	B	2 - 2 1/2" x 25 GA. MET. STUDS W/ SHEET MET. SCREWS @ 12" O.C.
15'-1" TO 20'-0"	B	2 - 3 1/2" x 25 GA. MET STUDS W/ SHEET MET. SCREWS @ 12" O.C.

4 TYP SUSPENDED CEILING
12" = 1'-0"

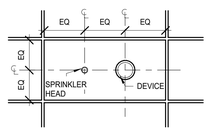


1 REFLECTED CEILING PLAN - UPPER LEVEL
1" = 10'-0"

0' 5' 10'

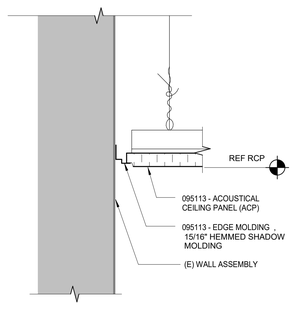


A. 24" x 48" GRID

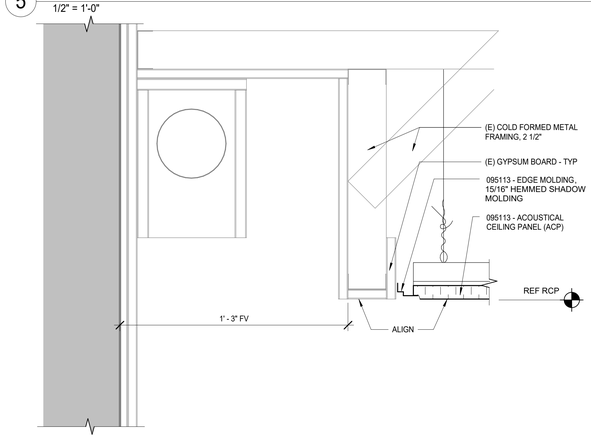


B. 24" x 48" GRID - ALTERNATE PLACEMENT

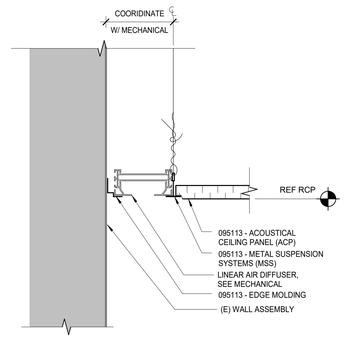
5 CEILING LAYOUT CRITERIA
1/2" = 1'-0"



2 ACP TO WALL TRANSITION
3" = 1'-0"



6 ACP TO RECESSED SOFFIT
3" = 1'-0"



3 ACP TO LINEAR DIFFUSER
3" = 1'-0"

RCP LEGEND

- (E) CEILING AREA - NOT IN SCOPE
- ACP-1, HEIGHT TO MATCH EXISTING
- LINEAR LIGHT FIXTURE, REFER TO ELECTRICAL DRAWINGS FOR TYPE
- REINSTALL (E) WALL MOUNTED EXIT SIGN
- INSTALL QUICK RESPONSE FIRE SPRINKLER HEADS WITH CHROME TRIM RING, CONNECT TO (E) PIPING. LOCATIONS SHOWN FOR LAYOUT PURPOSES ONLY.

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bassetti architects
721 NW 9th Ave, Suite 350
Portland, Oregon 97209
T (503) 224 9162
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
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CONSTRUCTION FOCUS INC.
740 Almaden Street
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T (541) 686 2031

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REGISTERED ARCHITECT
JOSEPH ECHEVERRI
GE50
PORTLAND, OREGON
STATE OF OREGON

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RCP - UPPER LEVEL

A8.12

GENERAL NOTES

WALL AND PARTITION TYPE SCHEDULE - GENERAL NOTES:

1. **WALL & PARTITION TYPES** ARE REFERENCED BY A WALL & PARTITION TYPE SYMBOL.

2. WALL AND PARTITION TYPE SYMBOL FORMAT:

3. **CODE ANALYSIS DRAWINGS** SHOW LOCATION OF FIRE RATED WALLS AND PARTITIONS INCLUDING OCCUPANCY SEPARATION, AND AREA SEPARATION WALLS WHICH REQUIRE OPENINGS TO BE PROTECTED BY FIRE-RATED ASSEMBLIES AND CONSTRUCTION BEYOND THE BASIC REQUIREMENTS FOR NON-COMBUSTIBLE CONSTRUCTION.

4. **BASIC PARTITION TYPE** IS A40 , AT STUD WALLS AND MAY NOT ALWAYS BE REFERENCED ON THE DRAWINGS BY A WALL & PARTITION TYPE SYMBOL.

5. **WALL & PARTITION TYPES** ARE DEFINED FOR EACH CONDITION IN THE PROJECT. CONSTRUCTION COMPONENTS INDICATED ARE THE MINIMUM THAT WILL BE ACCEPTED FOR EACH SPECIFIC WALL & PARTITION TYPE. SEE THE STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION, INCLUDING BUT NOT LIMITED TO STUD FLANGE WIDTHS, INTERIOR AND EXTERIOR HEADER AND JAMB STUD DESIGN, DETAILING REQUIREMENTS, ETC. ADJUST GAUGE AND SPACING OF STUDS FOR TALL AND/OR EXTERIOR WALLS, OR OTHER SPECIAL CONDITIONS AS OUTLINED IN THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.

6. **ACOUSTICAL BATT INSULATION** SHALL BE AS SPECIFIED UNLESS OTHERWISE NOTED ON THIS SCHEDULE. ALL PARTITIONS PENETRATIONS ACOUSTICALLY SEALED. FOR ADDITIONAL REQUIREMENTS SEE ACOUSTIC WALL DETAILS ON SHT [A9.XX]. ALL OTHER PARAMETERS ON THE WALL & PARTITION TYPES REMAIN UNCHANGED.

7. **"GWB" (GYPSUM WALL BOARD)** IS USED GENERICALLY IN THE WALL & PARTITION TYPE SCHEDULE AND REPRESENTS A VARIETY OF GYPSUM AND CEMETTITIOUS BOARD PRODUCTS. THESE INCLUDE THE FOLLOWING AND THEIR FIRE RATED COUNTERPARTS AS SPECIFIED:

A. **(GWB-X)** SHALL BE FIRE-RATED TYPE-X GYPSUM WALLBOARD CONSISTING OF A SPECIALTY TREATED PAPER FACE AND GYPSUM CORE PANEL AT ALL FIRE RATED WALL ASSEMBLIES.

C. **(MR-GWB)** SHALL BE A GYPSUM WALLBOARD WITH A MOISTURE RESISENT PAPER FACE AND GYPSUM CORE PANEL AT ALL PLUMBING AND WET WALL CONDITIONS NOT SCHEDULED TO RECEIVE CERAMIC TILE.

D. **(TBB)** SHALL BE TILE BACKER BOARD WHERE SCHEDULED TO RECEIVE CERAMIC TILE.

7. **WALLS & PARTITIONS** ARE DIMENSIONED ON THE PLANS TO FACE OF FRAMING UNLESS SHOWN OTHERWISE. WALLS & PARTITIONS NOT DIMENSIONED ARE LOCATED BY COLUMN CENTERLINE, WINDOW MULLION OR OTHER SUCH OBVIOUS REGULATOR. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WALL AND PARTITION LAYOUTS.

8. **DIFFERING WALL & PARTITION TYPES** SHALL ALIGN SO WALL PLANES CONTINUE UNBROKEN WITHIN ROOMS AND ADJACENT FACE OF FINISHES ALIGN UNLESS OTHERWISE INDICATED.

9. **UNBALANCED STUD WALL & PARTITION TYPES** SHALL HAVE THE SIDE WITH THE LARGEST NUMBER OF GWB LAYERS LOCATED ON THE SAME SIDE OF THE PARTITION AS THE WALL TAG IS SHOWN IN THE PLANS. UNBALANCED WALL & PARTITION TYPES SHALL ALIGN SO WALL PLANES CONTINUE UNBROKEN WITHIN ROOMS AND ADJACENT FACES UNLESS OTHERWISE NOTED.

10. **TYPICAL WALL AND PARTITION** FRAMING, FACING AND INSULATION SHALL EXTEND FULL HEIGHT TO UNDERSIDE OF FLOOR DECK OR ROOF DECK STRUCTURE ABOVE UNLESS NOTED OTHERWISE.

11. **FIRE TEST AND SOUND TEST NUMBERS** ARE BASED ON PUBLISHED STANDARDS FROM THE FOLLOWING CODES AND ASSOCIATIONS:

ACRONYM:	STANDARD:
IBC	INTERNATIONAL BUILDING CODE, TABLE 721.1(2), RATED FIRE RESISTIVE PERIODS FOR VARIOUS WALLS AND PARTITIONS
WP	GYPSUM ASSOCIATION, FIRE RESISTANCE DESIGN MANUAL FOR WALLS AND PARTITIONS.
UL	UNDERWRITERS LABORATORIES, FIRE RESISTANCE DIRECTORY FOR WALLS AND PARTITIONS.
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
RAL	RIVERBANK ACOUSTICAL LABORATORIES
WHI	INTERTECK TESTING SERVICES/ WARNOCK HERSEY, INC.

12. **SEE FINISH SCHEDULE** FOR MATERIALS APPLIED TO WALL TYPE; E.G. TILE, PAINT.

13. **WALL / CEILING BLOCKING:** PROVIDE AND INSTALL SOLID BLOCKING OR BACKING FOR WALL AND CEILING MOUNTED ITEMS IN ACCORDANCE WITH THE SPECIFICATIONS. EXTEND BLOCKING BEYOND LOCATION INDICATED BY 16".

14. **FLOOR BLOCKING:** INSTALL CONTINUOUS SOLID WOOD BLOCKING UNDER PARTITIONS LOCATED AT FLOORS WITH WOOD SLEEPERS AND REPAIR WOOD SUBSTRATE FOR NEW FINISH FLOORING. SEE SHEET [A9.XX] FOR FLOOR ASSEMBLIES.

15. **CONTROL JOINTS AT FRAMED WALLS AND PARTITIONS:** HORIZONTAL CONTROL JOINT SHALL BE LOCATED BY ARCHITECT WHEN NOT SHOWN ON INTERIOR ELEVATIONS. CONTROL JOINT CRITERIA SPECIFIED IN SECTION 092900.

16. **INFILL WALLS:** ALIGN BOTH FINISH FACES OF INFILL WALL WITH EXISTING ADJACENT WALL.

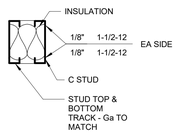
17. **ACOUSTICAL OUTLET BACKER PADS:** IN WALLS WITH NOTED STC AND FIRE RATING, INSTALL BACKER PADS BEHIND OUTLET BOXES PER DIV 26.

18. **ACOUSTIC INFILL:** AT EXISTING ABANDONED MASONRY WALL OPENINGS, INSTALL ACOUSTIC SEALANT AT SMALL PENETRATIONS OR INSTALL INFILL WALL TYPE A40 AT LARGER OPENINGS PRIOR TO INSTALLATION OF NEW FURRING WALLS.

19. **COMPOSITE METAL FRAMING INTERIOR HEADER SCHEDULE** AT NON-BEARING PARTITIONS:

SPAN	MINIMUM STUD SIZE
UP TO 6 FT.	(2) 20 X HD 600 (20 GA EXTRA HEAVY DUTY 6")
UP TO 8 FT.	(2) 18 X HD 600 (18 GA EXTRA HEAVY DUTY 6")
UP TO 12 FT.	(2) 16 X HD 600 (16 GA EXTRA HEAVY DUTY 6")
GREATER THAN 12 FT.	(2) 16 X HD 600 (16 GA EXTRA HEAVY DUTY 6")

TYPICAL SECTION



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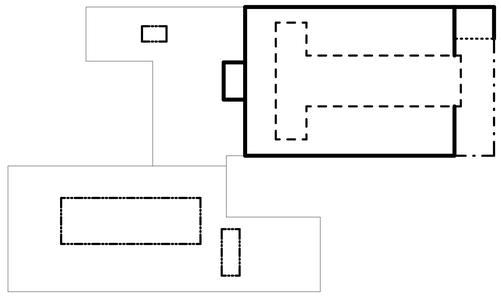
WALL TYPES



WALL TYPE DD

WALL TYPE EE

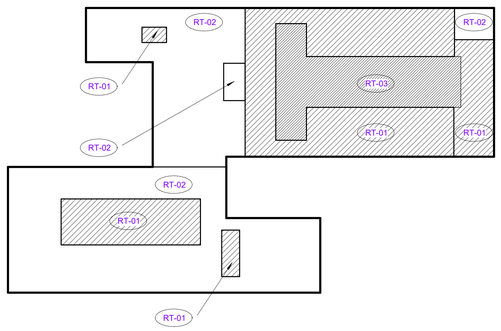
WALL TYPE BB, SEE EXTERIOR ELEVATIONS FOR EXTENT

MECHANICAL SCREEN WALL

MECHANICAL ENCLOSURE

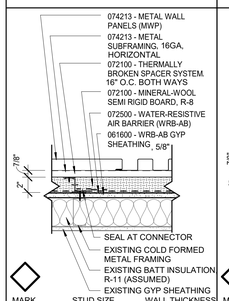
EXISTING WALL TYPE - NIC, SEE SHEET A5.51 AND FOLLOWING FOR RAISED PARAPET DETAILS

ROOF TYPES



EXTERIOR WALL TYPES

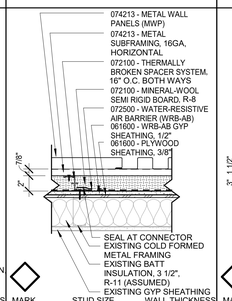
EE



MARK	STUD SIZE	WALL THICKNESS
EE60	6"	

RATING	TEST/FILE	VALUE
FIRE		
U-VALUE		

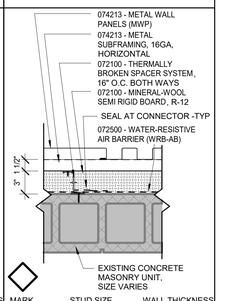
DD



MARK	STUD SIZE	WALL THICKNESS
DD40	3 1/2"	

RATING	TEST/FILE	VALUE
FIRE		
U-VALUE		

BB



MARK	STUD SIZE	WALL THICKNESS
BB80	7 5/8"	
BB100	9 5/8"	

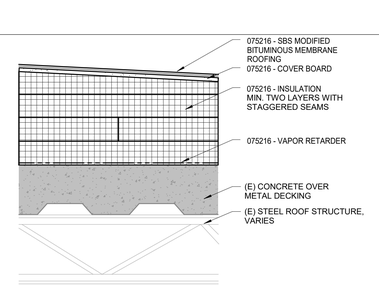
RATING	TEST/FILE	VALUE
FIRE		
U-VALUE		

ROOF TYPE ASSEMBLIES

RT-01

ROOFING:	SBS MODIFIED BITUMINOUS MEMBRANE ROOFING
DECKING:	(E) COMPOSITE CONCRETE AND METAL DECKING
INSULATION:	POLYISOCYANURATE INSULATION, R-36
STRUCTURE:	(E) STRUCTURAL STEEL FRAMING
CEILING:	(E) CEILING SYSTEM, VARIES

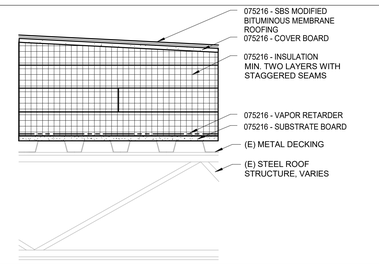
RATING	TEST/FILE	VALUE
FIRE		



RT-02

ROOFING:	SBS MODIFIED BITUMINOUS MEMBRANE ROOFING
DECKING:	(E) METAL DECKING
INSULATION:	POLYISOCYANURATE INSULATION, R-36
STRUCTURE:	(E) STRUCTURAL STEEL FRAMING
CEILING:	(E) CEILING SYSTEM, VARIES

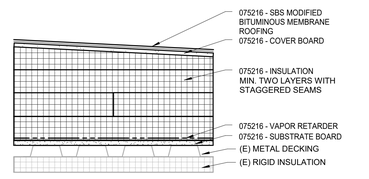
RATING	TEST/FILE	VALUE
FIRE		



RT-03

ROOFING:	SBS MODIFIED BITUMINOUS MEMBRANE ROOFING
DECKING:	(E) METAL DECKING
INSULATION:	POLYISOCYANURATE INSULATION, R-36
STRUCTURE:	(E) COLD FORMED METAL FRAMING
CEILING:	N/A

RATING	TEST/FILE	VALUE
FIRE		



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Portland, Oregon 97209
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111 SW 5th Ave, Suite 2600
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Gladstone, OR 97027
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Eugene, OR 97402
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Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2021

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REGISTERED ARCHITECT JOSEPH ECHEVERRI 6430 PORTLAND, OREGON STATE OF OREGON

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WALL & ROOF TYPE ASSEMBLIES

A9.21

DOOR SCHEDULE

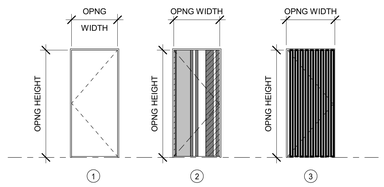
NO.	OPENING SIZE WIDTH	OPENING SIZE HEIGHT	RATING /LABEL	DOOR TYPE	DOOR MATERIAL	FRAME TYPE	FRAME MATERIAL	HEAD DETAIL	JAMB DETAIL	COMMENTS (E) = EXISTING
206 EX A	3'-6"	5'-8"	N/A	1	HM	A	HM	1/A9.30	1/A9.30 SIM	FIELD VERIFY HEIGHT RO. ADJUST DOOR HEIGHT ACCORDINGLY
301 EX A	2'-0"	3'-0"	N/A	2	HM	A	HM	1/A9.30	1/A9.30 SIM	FEILD VERIFY HEIGHT R,O,ADJUST DOOR HEIGHT ACCORDINGLY
S1-EXA	3'-0"	7'-0"			(E)		(E) HM	2/A9.30	13/A9.30	(E) TO REMAIN, REPLACE THRESHOLD

206 EX A, 301 EX A
HINGES: 1 1/2 PR
LOCKSET: MORTISE
CYLINDERS:
CLOSER: HEAVY DUTY
ACCESSORIES: WEATHERSTRIPPING, DRIP CAP

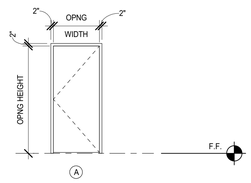
MANUF / MODEL
MCKINNEY T2714, BEARING HINGES, STANDARD WEIGHT
BEST 9K7N14KS3 FUCNTION
BEST, 7 PIN, KEYED PER OWNERS EXISTNG SYSTEM
LCN 4040
PEMKO 322CSPK, ADJUSTABLE, CLEAR ALUMINUM

COMMENTS
KEY OUT TO BACK STAGE ROOF FROM ELEC. ROOM - 206 EX A | F08, KEY INTO PLENUM - 301 EX A | F08

NOTES:
1. STANDARD FINISH: SATIN CHROME 626, U.N.O.
2. DOOR HARDWARE AND KEYING TO BE COORDINATED WITH OSU ACCESS, LOCK AND KEY SHOP FOR FINAL APPROVAL OF SYSTEM SELECTION PRIOR TO ORDERING CORES.

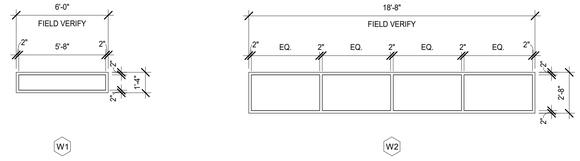


DOOR TYPES



DOOR FRAME TYPES

ALUM WINDOW TYPES



GLAZING LEGEND

IGU-1 TEMPERED INSULATING GLASS UNITS

GATE SCHEDULE

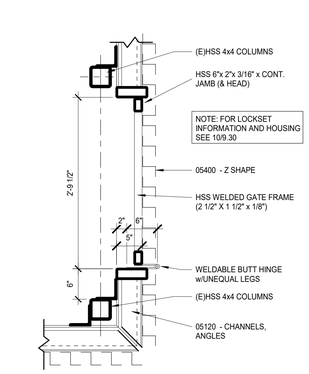
NO.	OPENING SIZE WIDTH	OPENING SIZE HEIGHT	RATING /LABEL	DOOR TYPE	DOOR MATERIAL	FRAME TYPE	FRAME MATERIAL	HEAD DETAIL	JAMB DETAIL	COMMENTS (E) = EXISTING
207 EX A	3'-0"	7'-0"	N/A		Z-SHAPE		STEEL	10/A9.30	5/A9.30	CUSTOM FABRICATION
208 EX A	3'-0"	7'-0"	N/A		Z-SHAPE		STEEL	10/A9.30	9/A9.30	CUSTOM FABRICATION
209 EX A	3'-0"	7'-0"	N/A		Z-SHAPE		STEEL	10/A9.30	6/A9.30	CUSTOM FABRICATION
209 EX B	3'-0"	7'-0"	N/A		Z-SHAPE		STEEL	10/A9.30	7/A9.30	CUSTOM FABRICATION
209 EX C	3'-0"	7'-0"	N/A		Z-SHAPE		STEEL	10/A9.30	8/A9.30	CUSTOM FABRICATION
S1-EXB	3'-4"	7'-0"	N/A		MWP		STEEL	4/A9.30	13/A9.30	CUSTOM FABRICATION

ALL GATES
HINGES 2 PR
LOCKSET MORTISE
CYLINDERS:
ACCESSORIES

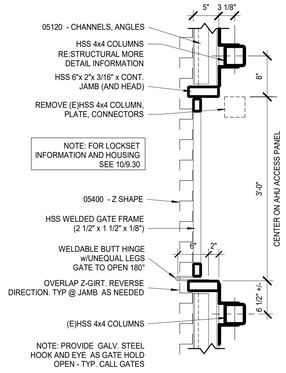
DARO BUTT 627510
BEST 9K7N14KS3 FUCNTION F01
BEST, 7 PIN, KEYED PER OWNERS EXISTNG SYSTEM
HOOK AND EYE HOLD OPENze

COMMENTS
FOR LEG LENGTH SEE DETAILS THIS SHEET
PLACE IN STEEL HOUSING INTEGRATED INTO GATE FRAME

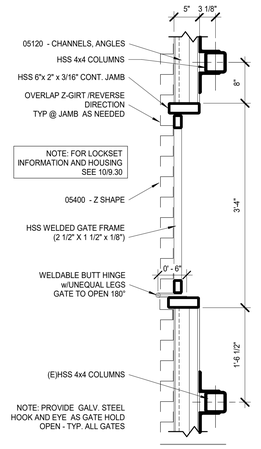
PLACE TO SECURE AT 180 DEGREES



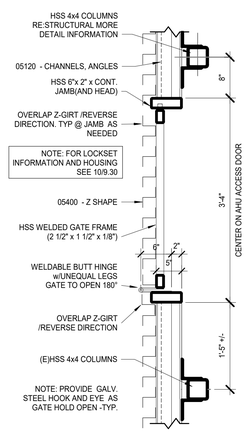
5 GATE DETAIL
1" = 1'-0"



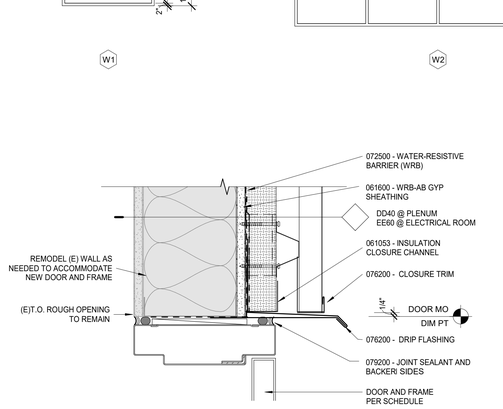
6 GATE DETAIL
1" = 1'-0"



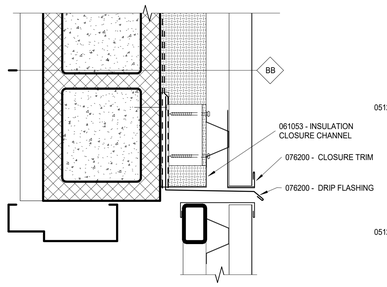
7 GATE DETAIL
1" = 1'-0"



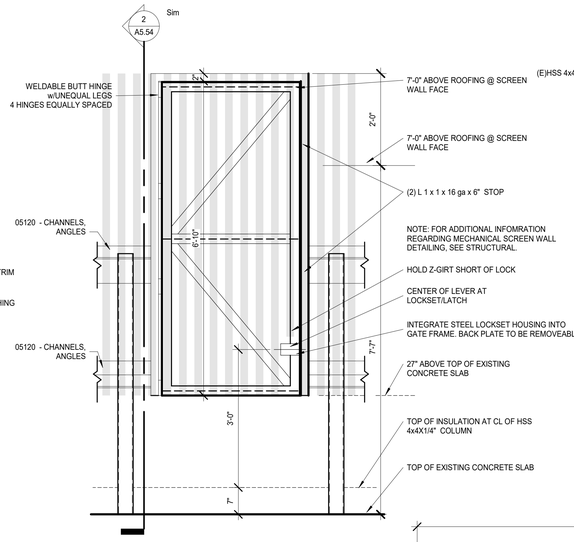
8 GATE DETAIL
1" = 1'-0"



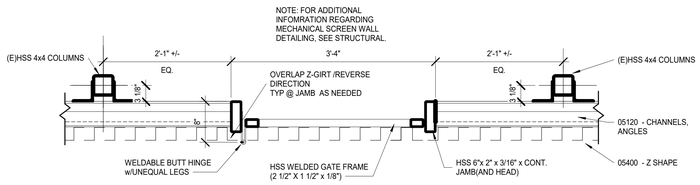
1 DOOR HEAD (JAMB SIM) @ (E) OPENING
3" = 1'-0"



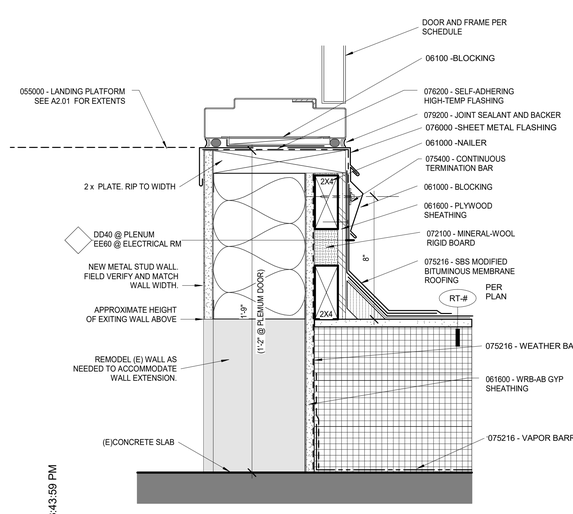
2 GATE(DOOR) HEAD (JAMB SIM)
3" = 1'-0"



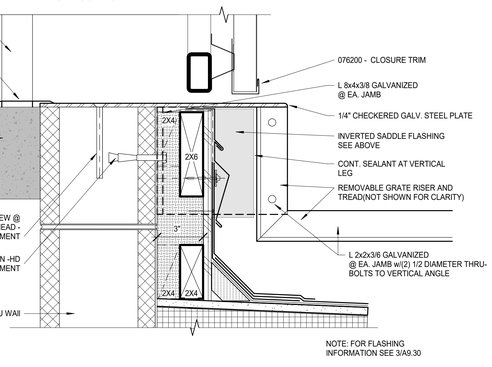
10 TYP. GATE ELEVATION
3/4" = 1'-0"



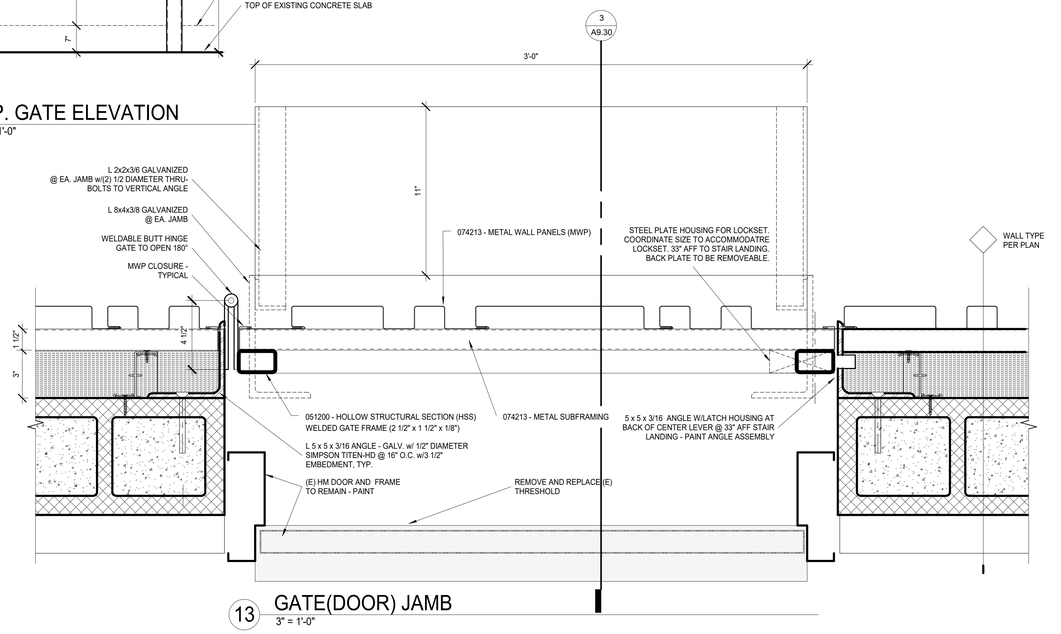
9 GATE DETAIL
1" = 1'-0"



3 DOOR SILL @ (E) OPENING
3" = 1'-0"



4 GATE(DOOR) SILL
3" = 1'-0"



13 GATE(DOOR) JAMB
3" = 1'-0"

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721 NW 9th Ave, Suite 350
Portland, Oregon 97209
T (503) 224 9162
www.bassettiarch.com

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KPFF
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ISSUE DATE: 02/21/2021

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REGISTERED ARCHITECT JOSEPH ECHEVERRIA 6430 PORTLAND, OREGON RENEWAL DATE OF OREGON

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DOOR, FRAME, EXTERIOR WINDOW TYPES & SCHEDULES

A9.30

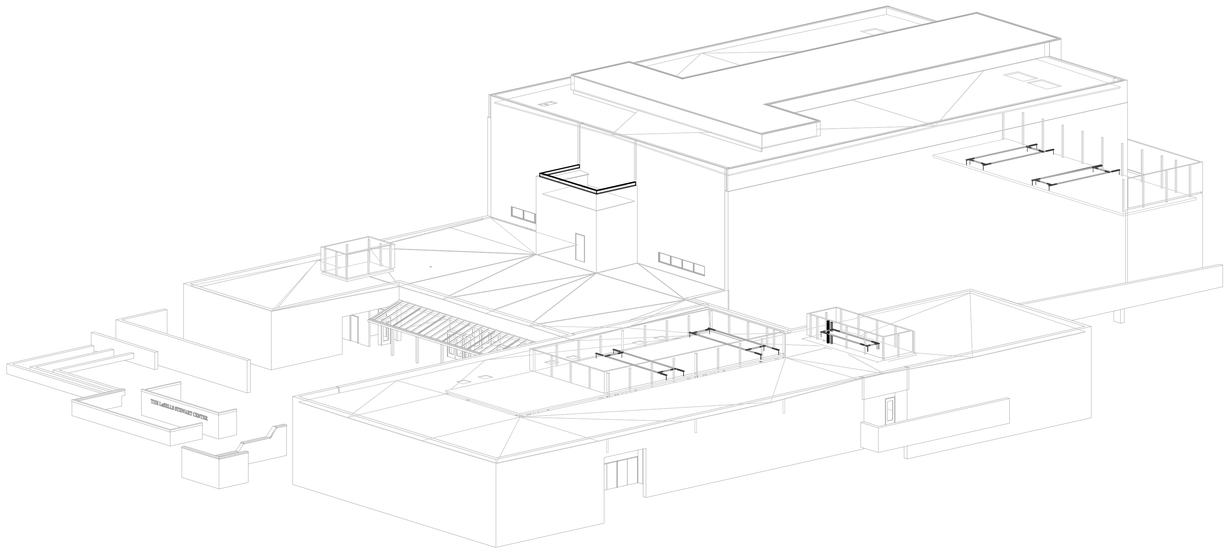
DRAWING INDEX

		ISSUE LOG		
		DESIGN DEVELOPMENT	75% CONST. DOCUMENTS	PERMIT SET
S0.01	DRAWING INDEX, LIST OF ABBREVIATIONS GENERAL STRUCTURAL NOTES	X	X	X
S0.02	GENERAL STRUCTURAL NOTES, SPECIAL INSPECTION AND TESTING TABLES	X	X	X
S0.03	SPECIAL INSPECTION AND TESTING TABLES	X	X	X
S2.01	ROOF PLAN - LOWER LEVEL	X	X	X
S2.02	ROOF PLAN - UPPER LEVEL	X	X	X
S6.01	ROOF DETAILS	X	X	X
S6.02	ROOF DETAILS	X	X	X
S6.03	ROOF DETAILS	-	X	X
	DATE	11/09/2021	12/20/2021	02/21/2022

ISSUE LOG KEY:
' X ' ISSUED AS PART OF A SET
' - ' NOT A PART OF ISSUED SET
' * ' FOR INFORMATION ONLY

LIST OF ABBREVIATIONS

A.B.	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADD'L.	ADDITIONAL
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT.	ALTERNATE
ALUM.	ALUMINUM
ARCH.	ARCHITECT / ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASD	ALLOWABLE STRENGTH DESIGN LOAD LEVEL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLDG.	BUILDING
BOT.	BOTTOM
BRBF	BUCKLING RESTRAINED BRACED FRAME
C.G.	CENTER OF GRAVITY
C.I.P.	CAST IN PLACE
C.J.	CONTROL JOINT
C.J.P.	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR.	CLEAR
CLT	CROSS LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
db	BAR DIAMETER
DBA	DEFORMED BAR ANCHOR
DET.	DETAIL
DIA., Ø	DIAMETER
DIAG.	DIAGONAL
D.L.	DEAD LOAD
DLT	DOWEL LAMINATED TIMBER
DWG.	DRAWING
ELEC.	ELECTRICAL
EL.	ELEVATION
EQ.	EQUAL
EXIST., (E)	EXISTING
EXP.	EXPANSION
EXT.	EXTERIOR
FDN.	FOUNDATION
FIN.	FINISH
FLR.	FLOOR
FRT	FIRE RETARDANT TREATED
FT.	FOOT
FTG.	FOOTING
GA.	GAUGE
GALV.	GALVANIZED
GL	GLULAM
HORIZ.	HORIZONTAL
HSS	HOLLOW STRUCTURAL STEEL
IBC	INTERNATIONAL BUILDING CODE
I.D.	INSIDE DIAMETER
IN.	INCHES
INT.	INTERIOR
K	KIPS
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
LBS.	POUNDS
L.L.	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC.	LOCATION
LONG.	LONGITUDINAL
LSL	LAMINATED STRAND LUMBER
LVF	LOW VELOCITY FASTENER
LVL	LAMINATED VENEER LUMBER
MAX.	MAXIMUM
MBMA	METAL BUILDING MANUFACTURERS ASSOCIATION
MECH.	MECHANICAL
MEPF	MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SAFETY
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MPH	MILES PER HOUR
MPP	MASS PLYWOOD PANELS
MT	MAGNETIC PARTICLE TESTING
(N)	NEW
N.I.C.	NOT IN CONTRACT
NLT	NAIL LAMINATED TIMBER
NOM.	NOMINAL
NO.	NUMBER
N.T.S.	NOT TO SCALE
o.c.	ON CENTER
O.D.	OUTSIDE DIAMETER
OPP.	OPPOSITE
OSL	ORIENTED STRAND LUMBER
OWJ	OPEN WEB JOIST
PAF	POWDER ACTUATED FASTENER
PART.	PARTITION
P/C	PRECAST
PCF	POUNDS PER CUBIC FOOT
PERIM.	PERIMETER
PL	PLATE
PP	PARTIAL PENETRATION
PSF	POUNDS PER SQUARE FOOT
PSL	PARALLEL STRAND LUMBER
PSI	POUNDS PER SQUARE INCH
P/T	POST-TENSIONED
P.T.	PRESSURE TREATED
PVC	POLYVINYL CHLORIDE
R, RAD.	RADIUS
RCSC	RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS
REF.	REFERENCE
RET.	RETURN
REINF.	REINFORCING
REQ'D.	REQUIRED
REQ'MTS.	REQUIREMENTS
SCHED.	SCHEDULE
S.C.	SLIP CRITICAL
SCL	STRUCTURAL COMPOSITE LUMBER
SIM.	SIMILAR
SFRS	SEISMIC FORCE RESISTING SYSTEM
S.O.G.	SLAB ON GRADE
SPEC.	SPECIFICATION
SQ.	SQUARE
SS	STAINLESS STEEL
SSMA	STEEL STUD MANUFACTURERS ASSOCIATION
STD.	STANDARD
STRUCT.	STRUCTURAL
SYM.	SYMMETRICAL
THRU	THROUGH
T&G	TONGUE AND GROOVE
TRANS.	TRANSVERSE
TS	LIGHT GAUGE TUBE STEEL
TYP.	TYPICAL
ULT.	ULTIMATE STRENGTH DESIGN LOAD LEVEL
U.N.O.	UNLESS NOTED OTHERWISE
U.T.	ULTRASONIC TESTING
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
w/	WITH
WF	WIDE FLANGE
w/o	WITHOUT
W.P.	WORK POINT
WPS	WELDING PROCEDURE SPECIFICATION
WWF	WELDED WIRE FABRIC



1 3D VIEW

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bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
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Eugene, OR 97402
T (541) 686 2031

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111 SW Fifth Ave., Suite 2600
Portland, OR 97204
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STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 78826PE OREGON MARCH 13, 2007 MARK W. TOBIN
EXPIRES: 06-30-22

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DRAWING INDEX, LIST OF ABBREVIATIONS GENERAL STRUCTURAL NOTES

S0.01

GENERAL STRUCTURAL NOTES

GENERAL

STRUCTURAL DRAWINGS ARE A PART OF THE CONTRACT DOCUMENTS AND ARE COMPLEMENTARY TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS, THE SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THE CONTRACT DOCUMENTS INTO THEIR SHOP DRAWINGS AND WORK. AS REQUIRED BY THE GENERAL CONDITIONS, THE CONTRACTOR SHALL PROMPTLY REPORT TO THE ARCHITECT ANY ERRORS, INCONSISTENCIES, OR OMISSIONS IN THE CONTRACT DOCUMENTS DISCOVERED BY OR MADE KNOWN TO THE CONTRACTOR.

THE GENERAL STRUCTURAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK. WHERE CONFLICT EXISTS, THE MORE STRINGENT OR RESTRICTIVE REQUIREMENT SHALL GOVERN UNITL CLARIFICATION IS REQUESTED.

CODE REQUIREMENTS:
CONFORM TO THE 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC), BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC).

TEMPORARY CONDITIONS:
THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES UNTIL COMPLETION.

CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

EXISTING CONDITIONS:
ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SIGNIFICANT DISCREPANCIES FROM CONDITIONS SHOWN ON THE DRAWINGS.

ASSUMED FUTURE CONSTRUCTION:
VERTICAL: NONE
HORIZONTAL: NONE

DESIGN CRITERIA

DESIGN WAS BASED ON THE STRENGTH AND DEFLECTION CRITERIA OF THE OSSC. IN ADDITION TO THE DEAD LOADS, THE FOLLOWING LOADS AND ALLOWABLES WERE USED FOR DESIGN, WITH LIVE LOADS (L.L.) REDUCED PER OSSC:

GRAVITY SYSTEM CRITERIA		
OCCUPANCY OR USE	UNIFORM LOAD	CONCENTRATED LOAD
TIE-OFF ANCHORS	--	REF. DETAILS
WIND CRITERIA		
RISK CATEGORY	III	
COMPONENTS AND CLADDING	V = 102 MPH BASIC DESIGN WIND SPEED (3-SECOND GUST)	
EXPOSURE CATEGORY	B	
GUST / INTERNAL PRESSURE	GCpi = +/- 0.18	
SEISMIC CRITERIA		
RISK CATEGORY	III	
SEISMIC DESIGN CATEGORY	D	
SITE CLASS	D	
IMPORTANCE FACTOR	IE = AS REQUIRED BY COMPONENT	
MAPPED MCE SPECTRAL ACCELERATION	Ss = 0.882	S1 = 0.467
SITE COEFFICIENT	Fa = 1.2	
DESIGN SPECTRAL ACCELERATION	SDS = 0.706	

STRUCTURAL OBSERVATIONS

THE STRUCTURAL ENGINEER OF RECORD (SEOR) WILL PERFORM STRUCTURAL OBSERVATIONS BASED ON THE REQUIREMENTS OF THE OSSC AT THE STAGES OF CONSTRUCTION LISTED BELOW. CONTRACTOR SHALL PROVIDE SUFFICIENT ADVANCED NOTICE AND ACCESS FOR THE SEOR TO PERFORM THESE OBSERVATIONS.

ITEM	COMMENTS
DURING INITIAL STEEL ERECTION	
AS REQUIRED TO ADDRESS STRUCTURAL ISSUES	

A FIELD REPORT WILL BE SUBMITTED TO THE BUILDING DEPARTMENT FOLLOWING EACH SITE VISIT.

STRUCTURAL OBSERVATION IS FOR THE GENERAL CONFORMANCE OF THE STRUCTURAL DRAWINGS AND DOES NOT ALLEVIATE ANY SPECIAL INSPECTION REQUIREMENTS.

SPECIAL INSPECTIONS AND TESTING

SPECIAL INSPECTION WILL BE PROVIDED BY THE OWNER BASED ON THE REQUIREMENTS OF THE OSSC AS SUMMARIZED IN THE SPECIAL INSPECTION AND TESTING PROGRAM ON SHEETS S0.03 AND S0.04. CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE AND ACCESS FOR THE SPECIAL INSPECTOR TO PERFORM THESE INSPECTIONS.

SUBMITTALS

SUBMIT SHOP DRAWINGS AND OTHER SUBMITTALS TO THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION AND CONSTRUCTION OF STRUCTURAL ITEMS. IF THE SUBMITTALS DIFFER FROM OR ADD TO THE STRUCTURAL CONTRACT DOCUMENTS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO REVIEW AND ACCEPTANCE BY THE SEOR.

FIELD ENGINEERED DETAILS DEVELOPED BY THE CONTRACTOR THAT DIFFER FROM OR ADD TO THE STRUCTURAL DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.

THE USE OF REPRODUCTIONS OR PHOTOCOPIES OF THE CONTRACT DRAWINGS SHALL NOT BE PERMITTED. WHEN CAD OR REVIT FILES ARE PROVIDED TO THE CONTRACTOR OR SUBCONTRACTORS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR/SUBCONTRACTOR TO REMOVE ALL INFORMATION NOT DIRECTLY RELEVANT TO THE SCOPE OF THE SUBMITTAL AS WELL AS ALL REFERENCES TO OUTSIDE SOURCE FILES.

DELEGATED DESIGN SUBMITTALS SHALL INCLUDE DESIGN DRAWINGS AND CALCULATIONS FOR ITEMS THAT ARE DESIGNED BY OTHERS. DELEGATED DESIGN SUBMITTALS SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON ON EVERY DRAWING SHEET AND ON THE CALCULATION COVER SHEET, AND SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION. CALCULATIONS SHALL BE INCLUDED FOR ALL CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS ON STRUCTURAL ELEMENTS. DESIGN SHALL BE BASED ON THE REQUIREMENTS OF THE OSSC AND AS NOTED UNDER "DESIGN CRITERIA".

SUBMITTALS AND DELEGATED DESIGN SUBMITTALS SHALL INCLUDE THE FOLLOWING:

ITEM	SUBMITTAL	DELEGATED DESIGN SUBMITTAL	COMMENTS
STRUCTURAL STEEL	X		
STEEL WELDING PROCEDURES	X		
STRUCTURAL COLD FORMED METAL FRAMING	X		
STEEL FASTENERS	X		
GLUE-LAMINATED MEMBERS	X		
PENETRATIONS OF SLABS/DECKS, WALLS, ETC.	X		REF. TABLE NOTE 3
NON-STRUCTURAL COLD FORMED METAL FRAMING THAT IS NOT INDICATED IN THE STRUCTURAL DRAWINGS		X	
GLAZING SYSTEMS, SKYLIGHTS, ACCESS HATCHES, SMOKE HATCHES, AND INTEGRATED GUARDRAILS OR SCREENS		X	
METAL PANEL CLADDING		X	
METAL STAIRS, LADDERS, AND RAILINGS THAT ARE NOT INDICATED IN THE STRUCTURAL DRAWINGS		X	
MEPF SYSTEMS ANCHORAGE AND BRACING		X	REF. TABLE NOTE 1
ROOF TIE-OFF ANCHORS		X	

TABLE NOTES:

1. THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS OF MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE SAFETY EQUIPMENT AND ASSOCIATED DISTRIBUTION SYSTEMS WITH THE STRUCTURE. CONNECTIONS TO STRUCTURE AND PROVISIONS FOR SEISMIC MOVEMENTS SHALL CONFORM TO ASCE 7-16 CHAPTER 13, BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE OF OREGON, AND SHALL BE SUBMITTED TO THE ARCHITECT AND SEOR PRIOR TO FABRICATION. FOR RISK CATEGORY III AND IV BUILDINGS, THE SYSTEMS ENGINEER SHALL SPECIFY THE REQUIREMENTS FOR EQUIPMENT SEISMIC CERTIFICATION IN THE DEFERRED SUBMITTAL IN ACCORDANCE WITH OSSC SECTION 1705.12.6 AND ASCE 7-16 SECTION 13.2.
2. CONTRACTOR SHALL ENGAGE A PROFESSIONAL ENGINEER TO PREPARE AN ASSESSMENT OF ANY EXCAVATIONS THAT MAY REDUCE THE VERTICAL OR LATERAL SUPPORT OF AN EXISTING FOUNDATION AS REQUIRED BY OSSC SECTION 1803.5.7. THE ASSESSMENT SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT AND SHALL INCLUDE DETAILS AND SEQUENCING FOR CONSTRUCTION OF ANY UNDERPINNING OR BRACING THAT IS REQUIRED.
3. CONTRACTOR SHALL COORDINATE AND SHOW ALL REQUIRED PENETRATIONS, WITH DIMENSIONS FOR MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, TECHNOLOGY AND OTHER SERVICES ON A SINGLE DRAWING FOR REVIEW AT EACH SLAB/DECK, STRUCTURAL WALL AND/OR BEAM.

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POST-INSTALLED CONCRETE ANCHORS

POST-INSTALLED CONCRETE ANCHORS SHALL BE THE FOLLOWING PRODUCTS, U.N.O.:

TYPE	APPROVED ANCHORS
EXPANSION	SIMPSON STRONG-BOLT 2 (ICC ESR-3037)
CONCRETE SCREW	SIMPSON TITEN HD (ICC ESR-2713)
ADHESIVE ANCHORS	SIMPSON SET-3G (ICC ESR-4057)

ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND PRODUCT EVALUATION REPORTS. EMBEDMENTS SPECIFIED ON DRAWINGS ARE "EFFECTIVE" EMBEDMENTS. REFERENCE MANUFACTURER LITERATURE FOR CORRESPONDING ACTUAL EMBEDMENT DEPTHS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION.

REQUESTS FOR ANCHOR SUBSTITUTIONS SHALL BE SUBMITTED TO THE SEOR IN WRITING ALONG WITH EVIDENCE OF EQUAL OR GREATER CAPACITY TO THE SPECIFIED CONNECTION.

INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLINED SHALL BE PERFORMED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER AS CERTIFIED THROUGH ACI/CRSI AND IN ACCORDANCE WITH ACI 318-14 SECTION 17.8.2.2. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE SEOR PRIOR TO INSTALLATION.

ALL-THREAD ROD FOR ADHESIVE ANCHORS SHALL CONFORM TO ASTM F1554 GRADE 55, U.N.O. ANCHORS EXPOSED TO EARTH OR WEATHER SHALL BE PROTECTED FROM CORROSION BY HOT-DIP GALVANIZING OR USE OF STAINLESS STEEL. PERMANENTLY EXPOSED EMBEDDED PLATES AND ANGLES SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION, U.N.O.

NO LOADS OR WELDS SHALL BE PLACED ON EMBEDDED PLATES OR ANGLES FOR A MINIMUM OF 7 DAYS AFTER CASTING. ADHESIVE ANCHORS SHALL NOT BE INSTALLED FOR A MINIMUM OF 21 DAYS AFTER CASTING CONCRETE IN ACCORDANCE WITH ACI 318-14 SECTION 17.1.2.

POST-INSTALLED MASONRY ANCHORS	
TYPE	APPROVED ANCHORS
EXPANSION	SIMPSON WEDGE-ALL (ICC ESR-1396)
SCREW	SIMPSON TITEN HD (ICC ESR-1056)
ADHESIVE ANCHORS	SIMPSON SET-XP (IAPMO ER-265)

ANCHORED BRICK VENEER

BRICK VENEER SHALL BE ANCHORED TO SUPPORTING WALL SYSTEMS WITH SEISMIC MASONRY VENEER ANCHORS. ANCHORS SHALL CONSIST OF A METAL ANCHOR SECTION AND A CONNECTOR SECTION DESIGNED TO ENGAGE A CONTINUOUS WIRE EMBEDDED IN THE VENEER MORTAR JOINT. ANCHORS SHALL BE DAYTON SUPERIOR D/A 213S, HOHMANN & BARNARD TYPE DW-10-X-SEISMICLIP OR APPROVED EQUAL.

VENEER ANCHORS SHALL BE ATTACHED TO SUBSTRATE WITH CORROSION RESISTANT SCREWS WITH NOMINAL Ø OF AT LEAST 0.190". THE MINIMUM THICKNESS OF COLD FORMED METAL STUD FRAMING RECEIVING ANCHOR ATTACHMENT SHALL BE 0.043". SPACE ANCHORS AT A MAXIMUM OF 32" o.c. HORIZONTALLY AND 25" o.c. VERTICALLY BUT PROVIDE NOT LESS THAN ONE ANCHOR FOR EVERY 2.0 SQUARE FEET OF VENEER AREA. PROVIDE ADDITIONAL ANCHORS WITHIN 12" OF OPENINGS SPACED AT 36" o.c. MAXIMUM. REDUCE ANCHOR SPACINGS BY HALF IN THE REGION BETWEEN BUILDING CORNERS AND THE VERTICAL JOINTS NEAREST TO THE CORNER.

REFERENCE SPECIFICATIONS FOR BRICK AND MORTAR REQUIREMENTS. REFERENCE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS AND DETAILS.

STRUCTURAL STEEL

STRUCTURAL STEEL SHALL BE OF THE MATERIAL AND TYPE LISTED BELOW, U.N.O.:

STRUCTURAL STEEL	
SHAPE	MATERIAL GRADE
WIDE FLANGE SHAPES	ASTM A992, GRADE 50
PLATES WHERE NOTED	ASTM A572, GRADE 50
CHANNELS, PLATES AND ANGLES, U.N.O.	ASTM A36
HOLLOW STRUCTURAL SECTIONS (RECTANGULAR)	ASTM A500, GRADE C (Fy=50KSI)
HOLLOW STRUCTURAL SECTIONS (ROUND)	ASTM A500, GRADE C (Fy=46KSI)
PIPES	ASTM A53, GRADE B (Fy=35 KSI)

DESIGN, DETAILING, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" WITH "COMMENTARY" AND THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", WITH THE FOLLOWING CLARIFICATIONS AND ADDITIONS:

1. CLARIFY SECTIONS 7.5.1 AND 7.5.3 AS FOLLOWS:
   EMBEDMENT LOCATION DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR INFORMATION ONLY. THE SEOR IS NOT RESPONSIBLE FOR THE APPROVAL OF EMBEDMENT LOCATION DRAWINGS.
2. ADD THE FOLLOWING PARAGRAPH TO SECTION 7.10.3:
   "THE ERECTOR SHALL HAVE THE SOLE RESPONSIBILITY FOR DETERMINING THE MEANS AND METHODS USED TO PROPERLY AND ADEQUATELY BRACE THE FRAMING DURING ERECTION."

BOLTS SHALL CONFORM TO THE ASTM AND RCSC SPECIFICATIONS FOR JOINTS USING HIGH STRENGTH BOLTS. BOLTS SHALL BE ASTM F3125 GRADE A325 AND GRADE A490 WHERE NOTED, AND SNUG-TIGHT UNLESS NOTED OTHERWISE.

WELDING SHALL CONFORM TO THE AWS CODES FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH A WELDING PROCEDURE SPECIFICATION (WPS) AS REQUIRED IN AWS D1.1 AND APPROVED BY THE STRUCTURAL ENGINEER. THE WPS VARIABLES SHALL BE WITHIN THE PARAMETERS ESTABLISHED BY THE FILLER-METAL MANUFACTURER.

WELDS SHALL BE MADE USING E70XX ELECTRODES AND SHALL BE 3/16" MINIMUM, UNLESS OTHERWISE NOTED. WELDING SHALL BE BY AWS CERTIFIED WELDERS.

PROVIDE WEEP HOLES AT EXTERIOR CLOSED SECTIONS WHERE MOISTURE MAY ACCUMULATE. LOCATE WEEP HOLES AT BOTTOM OF HORIZONTAL MEMBERS AT MIDSPAN UNLESS OTHER NOTED. LOCATE WEEP HOLES AT BOTTOM OF VERTICAL MEMBERS EXCEPT AT ROOF ASSEMBLIES. ALL WEEP HOLES TO BE APPROVED PRIOR TO FABRICATION.

NON-SHRINK GROUT USED UNDER BEARING AND BASE PLATES SHALL BE ASTM C 1107, FACTORY-PACKAGED, NONMETALLIC AGGREGATE GROUT, NONCORROSIVE, NONSTAINING, MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION AND A 30-MINUTE WORKING TIME. GROUT STRENGTH SHALL BE 8,000 PSI MINIMUM AT 28 DAYS.

DISSIMILAR METALS SHALL BE SEPARATED AS REQUIRED TO PREVENT GALVANIC CORROSION BY COMPLETELY COVERING CONTACT AREAS WITH HESKINS 3453 CORROSION PROTECTION TAPE OR APPROVED EQUAL MATERIAL.

GALVANIZING AND DUPLEX COATING

ALL STEEL EXPOSED TO WEATHER OR LOCATED OUTSIDE THE BUILDING ENVELOPE SHALL BE HOT-DIP GALVANIZED UNLESS NOTED OTHERWISE IN PROJECT SPECIFICATIONS OR DRAWINGS. WHERE THESE ELEMENTS ARE ALSO EXPOSED TO VIEW THEY SHALL ADDITIONALLY BE PAINTED OR POWDER COATED PER SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.

CONTRACTOR TO COMMUNICATE WITH GALVANIZER FOR THE PROJECT EARLY ON TO INFORM THE GALVANIZER THAT THE STEEL IS TO RECEIVE A DUPLEX COATING. HOT DIPPED GALVANIZED STEEL THAT IS TO BE PAINTED SHALL BE PREPARED PER ASTM D6386. HOT DIPPED GALVANIZED STEEL THAT IS TO BE POWDER COATED SHALL BE PREPARED PER ASTM D7803.

ALL GALVANIZED STEEL IS TO BE DETAILED TO BE SHOP WELDED AND FIELD BOLTED. WHERE FIELD WELDING IS REQUIRED DUE TO FIELD CONDITIONS, REPAIR DAMAGED GALVANIZED COATING WITH ZINC RICH PAINT PER ASTM A780 WITH EFFECTIVE THICKNESS EQUAL TO HOT-DIP GALVANIZED COATING.

COLD-FORMED METAL FRAMING

STEEL STUDS SHALL BE C-STUDS WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI FOR 33 AND 43 MIL AND 50,000 PSI FOR 54, 68 AND 97 MIL THICKNESSES. GAUGE PLATE AND STRAPS SHALL HAVE A MINIMUM YIELD STRENGTH OF 30,000 PSI FOR 33 AND 43 MIL AND 50,000 PSI FOR 54, 68 AND 97 MIL THICKNESSES. COLD-FORMED FRAMING SHALL BE OF THE SIZE, GAUGE, AND SPACING SHOWN ON THE DRAWINGS.

THE AMERICAN IRON AND STEEL INSTITUTE AND STEEL STUD MANUFACTURES ASSOCIATION (SSMA) STANDARDS ARE USED IN THIS PACKAGE. PRODUCTS USED SHALL MEET OR EXCEED AISI STANDARDS AND ARE DESIGNATED BY THE FOLLOWING FOUR PART IDENTIFICATION CODE, WITH ALL DIMENSIONS IN 1/100 INCHES:

EXAMPLE: **362 S 162 - 33**

362 INDICATES WEB DEPTH (IN 1/100 OF AN INCH)
S INDICATES SHAPE STYLE (S, T, U OR F)
162 INDICATES FLANGE WIDTH (IN 1/100 OF AN INCH)
33 INDICATES MATERIAL MIL THICKNESS (1 MIL = 1/1,000 INCH)

PROVIDE BRIDGING ADEQUATE TO DEVELOP THE FULL MOMENT CAPACITY OF STUDS IN CONFORMANCE WITH THE STEEL STUD MANUFACTURERS ASSOCIATION'S (SSMA) RECOMMENDATIONS.

ALL FIELD CUTTING OF STUDS MUST BE BY SAWING, SHEARING, OR PLASMA CUTTING. OTHER CUTTING METHODS OF COLD-FORMED MEMBERS ARE UNACCEPTABLE.

NO NOTCHING OR COPING OF STUDS IS ALLOWED, UNLESS NOTED OTHERWISE.

ENDS OF AXIAL LOAD BEARING WALL STUDS SHALL HAVE SQUARE END CUTS AND SHALL BE SEATED TIGHT AGAINST THE TRACKS WITH A MAXIMUM GAP TOLERANCE OF 1/8" BETWEEN THE STUD AND TRACK. FOR STUDS WITH A MATERIAL THICKNESS OF 68 MIL AND GREATER, THE MAXIMUM GAP TOLERANCE IS REDUCED TO 1/16".

SPLICING OF WALL STUDS OR HEADERS IS NOT ALLOWED, UNLESS NOTED OTHERWISE.

CONTRACTOR TO ENSURE PUNCH OUT ALIGNMENT WHEN ASSEMBLING LATERAL BRACING AND FIELD CUTTING STUDS TO LENGTH.

ALL HEADERS/BUILT-UP BEAMS ARE TO BE CONSTRUCTED WITH UNPUNCHED MATERIAL ONLY.

COLD-FORMED FRAMING CONNECTIONS SHALL BE AS FOLLOWS:

COLD-FORMED METAL FRAMING CONNECTIONS	
FASTENER	PRODUCT
SCREWS	ELCO DRIL-FLEX OR HILTI KWIK-FLEX (ESR-3332)
PAF'S	HILTI X-U (ESR-2269)

FOR SCREWS, PROVIDE 3/4" MINIMUM CLEARANCE FROM ALL EDGES AND 3/4" MINIMUM CENTER TO CENTER SPACING.

FASTENERS OF COMPARABLE SPECIFICATIONS AND LOAD CAPACITIES MAY BE SUBMITTED FOR APPROVAL.

WELDING SHALL CONFORM WITH AWS D1.3.

SAWN LUMBER

SAWN LUMBER SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE CURRENTLY ACCEPTED NATIONAL DESIGN SPECIFICATION (NDS) DESIGN VALUES FOR WOOD CONSTRUCTION AND CONFORMING TO THE WEST COAST LUMBER INSPECTION BUREAU OR WESTERN WOOD PRODUCTS ASSOCIATION GRADING RULES. LUMBER SHALL BE THE SPECIES, GRADE, AND MOISTURE CONTENT NOTED BELOW, U.N.O.:

USE	SPECIES AND GRADE	MOISTURE CONTENT
LUMBER 2" TO 4" THICK x 5" OR WIDER (JOISTS/RAFTERS)	DOUGLAS FIR-LARCH NO. 2 & BTR	S-DRY
LUMBER 2" TO 3" THICK x 4" TO 6" WIDE (STUDS)	DOUGLAS FIR-LARCH STUD	S-DRY
LUMBER 5x5 AND GREATER (BEAMS)	DOUGLAS FIR-LARCH NO. 1	S-DRY
LUMBER 5x5 AND GREATER (POSTS)	DOUGLAS FIR-LARCH NO. 1	S-DRY

ALL LUMBER IN CONTACT WITH CONCRETE OR CMU SHALL BE PRESERVATIVE TREATED, UNLESS AN APPROVED MOISTURE BARRIER IS PROVIDED.

CUTTING AND NOTCHING OF JOISTS AND STUDS SHALL CONFORM TO THE TYPICAL WOOD DETAILS PROVIDED OR OSSC SECTIONS 2308.4.2.4, 2308.5.9 AND 2308.7.4 WHERE NO DETAILS ARE SPECIFIED.

SALVAGED LUMBER IS ACCEPTABLE PROVIDED IT IS GRADED BY AN APPROVED GRADING AGENCY PRIOR TO USE AND MEETS A MINIMUM ALLOWABLE BENDING STRESS (Fb) OF 1,000 PSI. CONTRACTOR TO SUBMIT A GRADING REPORT ON EACH MEMBER TO THE ARCHITECT PRIOR TO INSTALLATION.

LUMBER FASTENERS AND ACCESSORIES

FRAMING ACCESSORIES INDICATED SHALL BE MANUFACTURED BY SIMPSON STRONG TIE (OR APPROVED EQUAL) AND OF THE SIZE AND TYPE SPECIFIED. ALL NAIL HOLES SHALL BE FILLED WITH STRUCTURAL FASTENERS, UNLESS NOTED OTHERWISE ON THE DRAWINGS AND FASTENERS SHALL BE INSTALLED FOLLOWING ALL MANUFACTURERS REQUIREMENTS. ACCESSORIES SHALL BE GALVANIZED UNLESS INDICATED OTHERWISE. PROVIDE G90 COATING EXCEPT WHERE IN CONTACT WITH PRESERVATIVE OR FIRE RETARDANT TREATED WOOD IN WHICH CASE G185 SHALL BE PROVIDED. SUBMIT SUBSTITUTION REQUESTS TO ARCHITECT FOR APPROVAL OUTLINING THE FRAMING ACCESSORIES BEING REPLACED AND THE SUBSTITUTED FRAMING ACCESSORIES. ALLOWABLE LOADS FOR THE SPECIFIED ACCESSORIES SHALL BE TABULATED ALONG WITH THE ALLOWABLE LOADS FOR THE SUBSTITUTED ACCESSORIES. SUBSTITUTION REQUESTS WILL ONLY BE APPROVED WHERE SUBSTITUTED PRODUCTS ARE CLEARLY DOCUMENTED TO HAVE EQUAL OR GREATER CAPACITY IN ALL DIRECTIONS.

ALL FRAMING NAILS SHALL BE THE SIZE AND QUANTITY INDICATED AND CONFORM TO ASTM F 1667, INCLUDING SUPPLEMENT 1, "STANDARD SPECIFICATION OF DRIVEN FASTENERS: NAILS, SPIKES, AND STAPLES" AND ICC-ES REPORT ESR-1539 "POWER-DRIVEN STAPLES AND NAILS". NAILS SHALL BE IDENTIFIED BY LABELS (ATTACHED TO THEIR CONTAINERS) THAT SHOW THE MANUFACTURER'S NAME AND ICC-ES REPORT NUMBER, NAIL SHANK Ø AND LENGTH AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FRAMING. NAILING NOT SHOWN SHALL BE AS INDICATED IN OSSC TABLE 2304.10.1 OR ICC ESR-1539. THE FOLLOWING NAIL SIZES SHALL BE USED WITH THE NAIL LENGTH DETERMINED BY MINIMUM PENETRATION INTO FRAMING MEMBER:

FRAMING NAILS		
NAIL TYPE	SHANK Ø (IN.)	MINIMUM PENETRATION INTO FRAMING MEMBER (IN.)
6d	0.113	1.125
8d	0.131	1.375
10d	0.148	1.5
12d	0.148	1.5
16d	0.162	1.625

BOLTS AND LAG SCREWS SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1. ALL BOLTS AND LAG SCREWS SHALL BE INSTALLED WITH STANDARD CUT WASHERS.

GLUED-LAMINATED MEMBERS

GLUED-LAMINATED (GLULAM) MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH CURRENT ANSI STANDARD A190.1, AMERICAN NATIONAL STANDARD FOR STRUCTURAL GLUED LAMINATED TIMBER OR OTHER CODE- APPROVED DESIGN, MANUFACTURING AND/OR QUALITY ASSURANCE PROCEDURES. EACH MEMBER SHALL BEAR AN AITC OR APA-EWS IDENTIFICATION MARK OR BE ACCOMPANIED BY A CERTIFICATE OF CONFORMANCE. APA-EWS MARKS TO BE PLACED ON SURFACES NOT EXPOSED IN COMPLETED CONSTRUCTION. ONE COAT OF END SEALER SHALL BE APPLIED IMMEDIATELY AFTER TRIMMING IN EITHER THE SHOP OR IN THE FIELD.

GLULAM MEMBERS SHALL BE INDUSTRIAL (HIDDEN) APPEARANCE CLASSIFICATION, REFERENCE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

GLULAM MEMBERS SHALL BE OF MINIMUM ALLOWABLE DESIGN PROPERTIES AS ESTABLISHED BY ASTM D3737:

GLUED-LAMINATED BEAMS				
COMBINATION SYMBOL (SPECIES)	FLEXURAL STRESS, Fb (PSI)	HORIZONTAL SHEAR STRESS Fv (PSI)	COMPRESSION STRESS PERP TO GRAIN Fc,perp (PSI)	MODULUS OF ELASTICITY (PSI)
24F-V4 (DF/DF) (SIMPLE SPAN)	+2,400 / -1,850	265	650	1,800,000
24F-V8 (DF/DF) (CONTINUOUS OR CANTILEVER)	2,400	265	650	1,800,000

REFERENCE SPECIFICATIONS FOR FABRICATION AND MILLING TOLERANCES FOR TIMBER SIZES, HOLES, AND CONNECTIONS. CONNECTIONS SHALL BE SHOP FABRICATED TO GREATEST EXTENT INCLUDING CUTTING TO LENGTH AND DRILLING HOLES.

NOTCHES, DAPS, HOLES, ETC. SHALL BE REPRESENTED ON SHOP DRAWINGS FOR REVIEW BY SEOR. FIELD NOTCHING AND BORING OF GLULAM MEMBERS IS NOT ALLOWED UNLESS APPROVED BY SEOR.

GLULAM PRODUCTS SHALL CONTAIN AVERAGE MOISTURE CONTENT OF 15% OR LESS AT TIME OF MANUFACTURE. REFERENCE SPECIFICATIONS FOR ALLOWED DIMENSIONAL TOLERANCES AT TIME OF MANUFACTURE.

bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
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Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 78836PE OREGON MARCH 13, 2007 MARK W. TOBIN
EXPIRES: 06-30-22

GENERAL STRUCTURAL NOTES, SPECIAL INSPECTION AND TESTING TABLES

PERMIT SET

S0.02

TABLES OF SPECIAL INSPECTIONS

OVERALL ENGINEER NOTES: (Notes to the Designer NOT to be included in the construction documents.)

1. THESE TABLES WERE DEVELOPED BY THE SEAO SPECIAL INSPECTION COMMITTEE. THEY ARE BASED ON THE OSSC 2019 AND REFERENCE DOCUMENTS. PLEASE CONTACT ONE OF THE SEAO SPECIAL INSPECTION COMMITTEE MEMBERS IF YOU FIND ERRORS OR ITEMS THAT ARE UNCLEAR.
2. REVIEW TABLES WITH GENERAL STRUCTURAL NOTES AND PROJECT SPECIFICATIONS. MANY SPECIFICATION SECTIONS INCLUDE INSPECTION AND TESTING REQUIREMENTS. AVOID REDUNDANT INFORMATION.
3. REVIEW ALL TABLES TO DETERMINE WHICH APPLY TO YOUR PROJECT. REMOVE TABLES THAT DO NOT APPLY. CONSIDER REVIEWING MULTIPLE TIMES DURING THE DESIGN PHASE OF PROJECT. TABLE NUMBERS ARE REFERENCED WITHIN THE TABLES. IF RENUMBERING TABLES MAKE SURE ALL TABLE REFERENCES ARE UPDATED. IDENTIFY INSPECTION POINTS, FREQUENCY, TYPE AND EXTENT OF SPECIAL INSPECTIONS.
4. SEE TABLE SPECIFIC ENGINEERING NOTES FOR ADDITIONAL GUIDANCE, LOCATED TO RIGHT SIDE OF TABLES USING BLUE TEXT.
5. REVIEW USE OF PERIODIC INSPECTION. PROVIDE FURTHER DEFINITION WHERE EXTENT, FREQUENCY AND TYPE OF INSPECTIONS FOR EACH MATERIAL OR TYPE OF CONSTRUCTION ARE SPECIFICALLY DEFINED.
6. CONTRACTOR RESPONSIBILITY PROGRAM APPLIES ONLY TO BUILDINGS REQUIRING SPECIAL INSPECTIONS FOR WIND OR SEISMIC RESISTANCE. REFERENCE OSSC SECTION 1704.4, 1705.11 AND 1705.12
7. CODE ALLOWS FOR SPECIAL INSPECTIONS TO BE OMITTED FOR CONSTRUCTION OF A MINOR NATURE. REFERENCE OSSC 1704.2.
8. SEE GENERAL STRUCTURAL NOTES FOR STRUCTURAL OBSERVATIONS. STRUCTURAL OBSERVATIONS ARE NOT ADDRESSED IN THESE TABLES.
9. STEEL INSPECTION REQUIREMENTS ARE FROM BOTH THE OSSC AND THE REFERENCED AISC 341 AND 360 PER OSSC SECTION 1705.2.1 AND 1705.11.1. OSSC TABLES AND AISC TABLE UTILIZE DIFFERENT NOMENCLATURE REQUIRING EXPANDED TABLES. OTHER STATES, INCLUDING CALIFORNIA AND WASHINGTON, ADOPTED THE IBC'S REQUIREMENTS WHICH USE INSPECTION REQUIREMENTS FROM AISC ALONE FOR STEEL.
10. AISC REQUIREMENTS FOR STEEL INSPECTIONS ARE INTENDED TO SHIFT SOME OF THE INSPECTION REQUIREMENTS TO THE FABRICATOR AND ERECTOR. SEE AISC 360 N2 AND AISC 341 J FOR "FABRICATOR AND ERECTOR QUALITY CONTROL PROGRAM" REQUIREMENTS.
11. SEE 1704.2.5.1 FOR FABRICATION AND IMPLEMENTATION PROCEDURES.

GENERAL - SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	OSSC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 6)		REMARKS
			CONTINUOUS	PERIODIC	
FABRICATORS	1705.10 1704.2.5				SPECIAL INSPECTION IS REQUIRED FOR STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS SHALL BE PERFORMED DURING FABRICATION. PERFORMING SPECIAL INSPECTIONS IS NOT REQUIRED, WHERE FABRICATOR HAS BEEN APPROVED AS AN APPROVED FABRICATOR, PER SECTION 1704.2.5.1.
DEFERRED SUBMITTALS				X	SPECIAL INSPECTION REQUIREMENTS FOR DEFERRED SUBMITTAL ITEMS, INCLUDING REQUIREMENTS FOR DESIGNATED SEISMIC SYSTEMS IN ACCORDANCE WITH OSSC SECTION 1705.12.4 IF APPLICABLE, TO BE SPECIFIED BY THE SYSTEM ENGINEER AND INCLUDED WITH DEFERRED SUBMITAL DOCUMENTS.
SUBMITTALS TO THE BUILDING OFFICIAL	1704.5			X	CERTIFICATES OF COMPLIANCE, REPORTS OF PRE-CONSTRUCTION TESTS, OR REPORTS OF MATERIAL PROPERTIES SHALL BE SUBMITTED TO THE BUILDING OFFICIAL.
POST INSTALLED ADHESIVE ANCHORS WITH SUSTAINED TENSION LOADS INSTALLED HORIZONTALLY OR AT AN UPWARD INCLINE IN HARDENED CONCRETE AND COMPLETED MASONRY			X		
POST INSTALLED MECHANICAL ANCHORS AND ADHESIVE ANCHORS (EXCLUDING CONDITIONS NOTED ABOVE) IN HARDENED CONCRETE AND COMPLETED MASONRY				X	

STEEL - SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	OSSC CODE REFERENCE	CODE OR STANDARD REFERENCE	INSPECTION (NOTES 5 AND 6)		REMARKS
			CONTINUOUS/ PERFORM	PERIODIC/ OBSERVE	
CONTRACTOR QUALITY CONTROL REQUIREMENTS		AISC 360 CHAPTER N	X	X	CONTRACTOR TO PROVIDE QUALITY CONTROL FOR ALL ITEMS INDICATED TO BE OBSERVED AND/OR PERFORMED IN TABLE BELOW
STEEL FABRICATION					
FABRICATION OF STRUCTURAL ELEMENTS	1704.2.5.1	AISC 360		X	REFER TO INSPECTION OF FABRICATOR REQUIREMENTS
MATERIAL VERIFICATION OF STRUCTURAL STEEL COMPONENTS	1505.2.1 2203.1 TABLE 1705.2	ASTM A6 ASTM STANDARDS SPECIFIED IN CONSTRUCTION DOCUMENTS AISC 360 A3.1 AISC 360 N3.2		X	CERTIFIED MILL TEST REPORTS
MATERIAL VERIFICATION OF HIGH STRENGTH BOLTS, NUTS, AND WASHERS	1705.2.1.2 AISC 360 N5 TABLE 1705.2-2	AISC 360 A3.3 AISC 360 N3.2 ASTM STANDARDS SPECIFIED IN CONSTRUCTION DOCUMENTS RCSC 2.1		X	MANUFACTURER'S CERTIFIED TEST REPORTS
MATERIAL VERIFICATION OF ANCHOR BOLTS AND THREADED RODS		AISC 360 A3.4 AISC 360 N3.2 ASTM STANDARDS SPECIFIED IN CONSTRUCTION DOCUMENTS		X	MANUFACTURER'S CERTIFIED TEST REPORTS
MATERIAL VERIFICATION OF WELD FILLER METALS	1705.2.1.1 TABLE 1705.2-5	AISC 360 A3.5 AISC 360 N3.2 APPLICABLE AWS A5 DOCUMENTS		X	MANUFACTURER'S CERTIFIED TEST REPORTS
STRUCTURAL STEEL WELDING					
VERIFYING USE OF PROPER WPS'S	1705.2.1 AWS D1.1	AISC 360 N3.2			RETAIN A RECORD OF WELDING PROCEDURE SPECIFICATIONS
VERIFYING WELDER QUALIFICATIONS		AWS D1.1		X	RETAIN A RECORD OF QUALIFICATION CARDS
COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS	TABLE 1705.2-6	AWS D1.1 CLAUSE 6	X		
MULTIPASS FILLET WELDS			X		
SINGLE PASS FILLET WELDS GREATER THAN 5/16"			X		ALL WELDS VISUALLY INSPECTED PER AWS D1.16.9
PLUG AND SLOT WELDS			X		
SINGLE PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16"				X	
WELDING STAIR AND RAILING SYSTEMS	1705.2(2.5)	AWS D1.1 CLAUSE 6		X	ALL WELDS VISUALLY INSPECTED PER AWS D1.1 6.9
VERIFICATION OF JOINT & CONNECTION DETAILS INCLUDING MEMBER AND COMPONENT LOCATIONS, BRACING, AND STIFFENERS	TABLE 1705.2-7	AWS D1.1		X	
HIGH-STRENGTH BOLTING					
SNUG-TIGHT BOLT INSTALLATION	1705.2.1 TABLE 1705.2-2 AISC 360 M2-5 AISC 360 N5-6	RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS SECTION 9 AISC 360 SECTION M2.5		X	ALL CONNECTIONS VISUALLY INSPECTED AND VERIFIED SNUG
PRETENSIONED BOLT INSTALLATION USING TURN-OF-THE-NUT METHOD WITH MATCH MARKING, DIRECT TENSION INDICATOR METHOD, OR TWIST-OFF TYPE TENSION CONTROL BOLT METHOD				X	ALL CONNECTIONS VISUALLY INSPECTED. CONNECTIONS USING DIRECT TENSION INDICATORS, ALL BOLTS SHALL BE INSPECTED AFTER SNUGGING AND AFTER PRETENSIONING
PRETENSIONED BOLT INSTALLATION USING TURN-OF-THE-NUT METHOD WITHOUT MATCH MARKING OR CALIBRATED WRENCH METHOD			X		ALL CONNECTIONS VISUALLY INSPECTED
INSPECTION TASKS PRIOR TO BOLTING					
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	1705.2.1.2 TABLE 1705.2-2	AISC 360 TABLE N5.6-1 AISC 360 M2.5	X		
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS				X	
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH, IF THREADS ARE TO BE EXCLUDED FROM THE SHEAR PLANE)				X	
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL				X	
CONNECTING ELEMENTS< INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS				X	
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED				X	
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS				X	
INSPECTION TASKS DURING BOLTING					
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	1705.2.1.2 TABLE 1705.2-2	AISC 360 TABLE N5.6-2 AISC M2.5 RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS SECTION 9		X	
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION				X	
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING				X	
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES				X	
INSPECTION TASKS AFTER BOLTING					
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	1705.2.1.2 TABLE 1705.2-2	AISC 360 TABLE N5.6-3	X		

STEEL - TESTING

SYSTEM OR MATERIAL	OSSC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 6)	REMARKS
STEEL				
ULTRASONIC (UT) TESTING OF WELDS	**1705.2.1**	AWS D1.1 6.13 & 6.14.3		ALL C.J.P. WELDS 5/16" AND THICKER REQUIRE UT TESTING.
MAGNETIC PARTICLE (MT) TESTING OF WELDS	**1705.2.1**	AWS D1.1 6.14.4 AISC360 N5.5c		REQUIRED WHERE SPECIFICALLY NOTED ON DRAWINGS
PRE-CONSTRUCTION TESTING OF WELDING STUDS, WELDED REINFORCING BARS AND DBA'S	**1705.2.1**	AWS D1.1 7.7.1	EACH SIZE AND TYPE OF STUD/BAR EACH SHIFT	THIS TESTING PERFORMED BY CONTRACTOR AND CONFIRMED BY SPECIAL INSPECTOR
PRE-INSTALLATION VERIFICATION OF PRETENSIONED HIGH STRENGTH BOLTS	**1705.2.1**	RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS SECTION 7	EACH COMBINATION OF Ø, LENGTH, GRADE, AND LOT TO BE USED IN THE WORK	

LIGHT GAUGE AND OTHER STEEL - SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	OSSC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 6)		REMARKS
			CONTINUOUS	PERIODIC	
GENERAL					
IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	1705.2.2 1705.2.3 1705.2.4 TABLE 1705.2-4	APPLICABLE ASTM STANDARDS		X	MANUFACTURER'S CERTIFIED TEST REPORTS

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bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

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KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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FORENSIC BUILDING CONSULTANTS
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Gladstone, OR 97027
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Eugene, OR 97402
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111 SW Fifth Ave., Suite 2600
Portland, OR 97204
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F: 503.227.7980
www.kpff.com
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Oregon State University
LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

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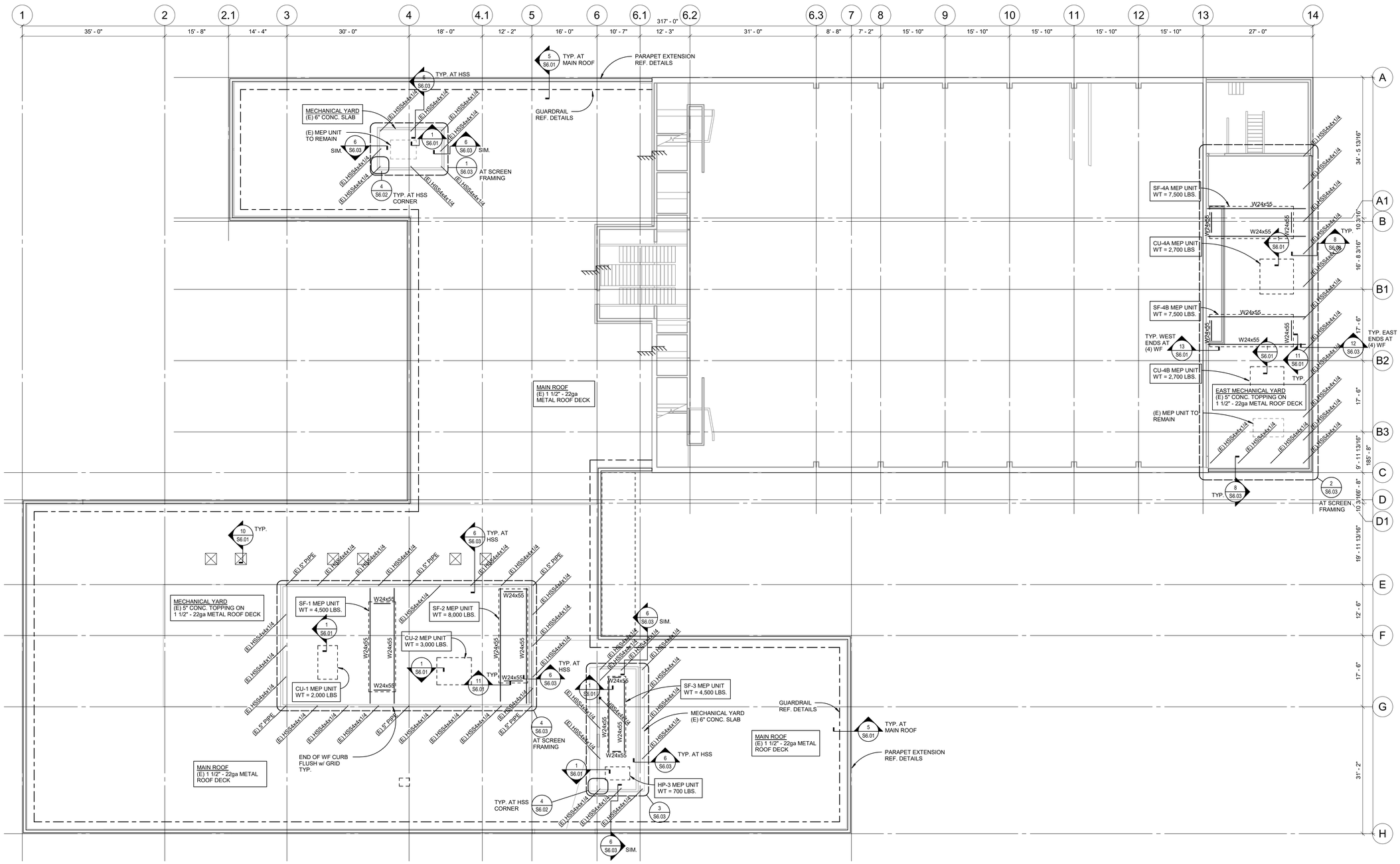
STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
78836PE
OREGON
MARCH 13, 2007
MARK W. TOBIN
EXPIRES: 06-30-22

SPECIAL INSPECTION AND TESTING TABLES

S0.03



1 ROOF PLAN - LOWER LEVEL

1" = 10'-0"

PLAN NOTES:

1. REF. S002 - S003 FOR GENERAL STRUCTURAL NOTES. REF. S600 SERIES FOR DETAILS.
2. EL. XXX'-XX" INDICATES TOP OF SLAB ELEVATION.
3. TOP OF CONC. EL. XX'-XX" INDICATES TOP OF CONCRETE ELEVATION.
4. TOP OF STEEL EL. XX'-XX" INDICATES TOP OF STEEL ELEVATION.
5. TOP OF WALL EL. XX'-XX" INDICATES TOP OF WALL ELEVATION.
6. INDICATES STEP IN ELEVATION.
7. INDICATES SLOPE.
8. INDICATES RIDGE.
9. REF. ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT GIVEN.
10. REF. ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR SLEEVES, BLOCK OUTS AND OTHER ITEMS TO BE COORDINATED WITH THE STRUCTURAL DRAWINGS.
11. CONTRACTOR TO COORDINATE LOCATIONS OF OPENINGS, DRAINS, AND STEPS WITH ARCHITECTURAL DRAWINGS PRIOR TO THE START OF CONSTRUCTION.
12. CONTRACTOR TO VERIFY AND COORDINATE ALL MECHANICAL AND ELECTRICAL LOCATIONS, OPENINGS, AND MOUNTING DETAILS WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO THE START OF CONSTRUCTION.
13. INDICATES SLAB OR DECK OPENING. REF. PLAN AND ARCH. DRAWINGS FOR LOCATION AND EXTENTS.
14. TOA INDICATES LOCATION AND TYPE OF TIE-OFF ANCHOR. REF. 1/S6.02.

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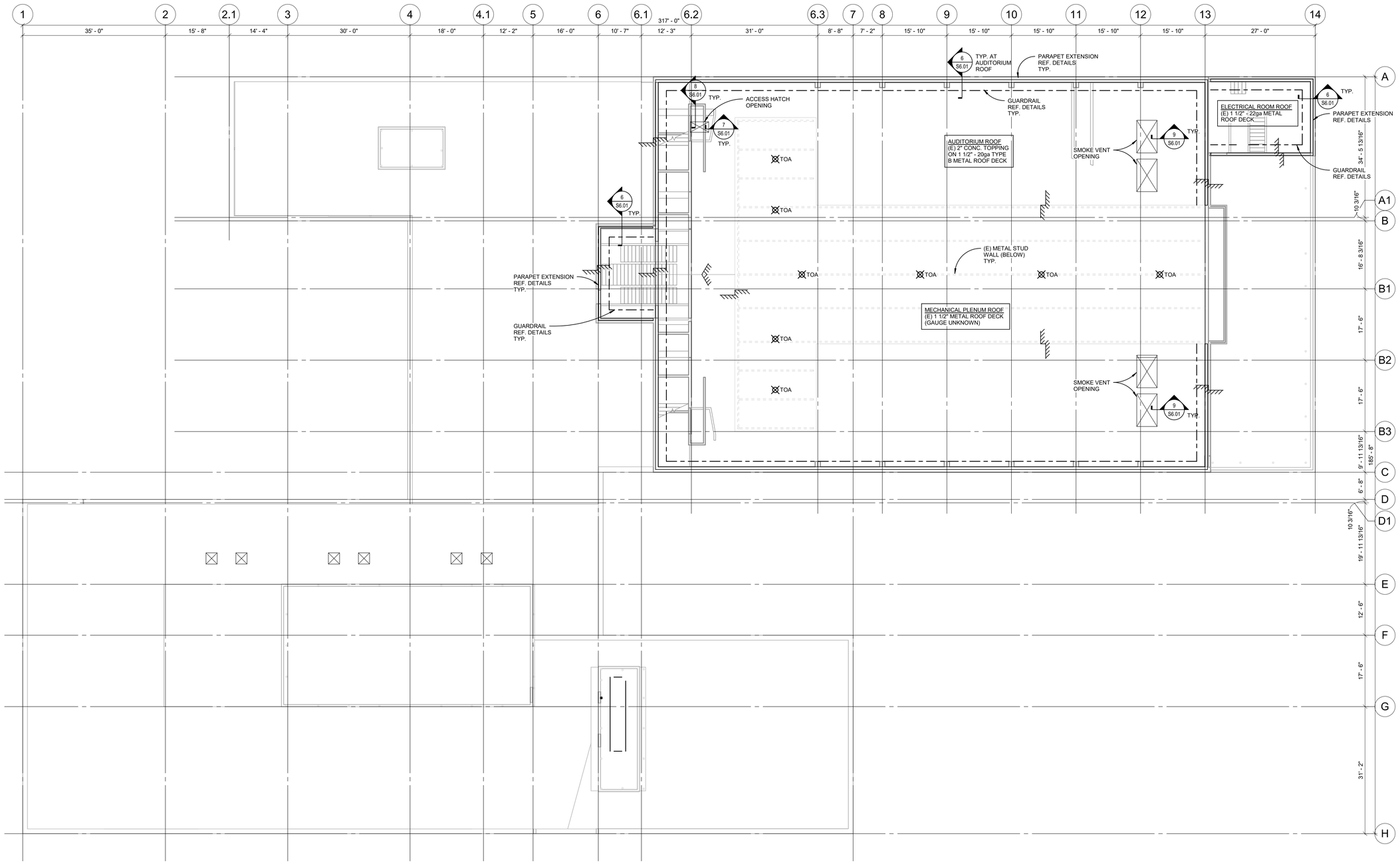
EXPIRES: 06-30-22

ROOF PLAN - LOWER LEVEL

S2.01



1 ROOF PLAN - UPPER LEVEL
1" = 10'-0"

PLAN NOTES:

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2. EL. XXX'-XX" INDICATES TOP OF SLAB ELEVATION.
3. TOP OF CONC. EL. XX'-XX" INDICATES TOP OF CONCRETE ELEVATION.
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5. TOP OF WALL EL. XX'-XX" INDICATES TOP OF WALL ELEVATION.
6. INDICATES STEP IN ELEVATION.
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14. TOA INDICATES LOCATION AND TYPE OF TIE-OFF ANCHOR. REF. 1/S6.02.

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EXPIRES: 06-30-22

ROOF PLAN - UPPER LEVEL

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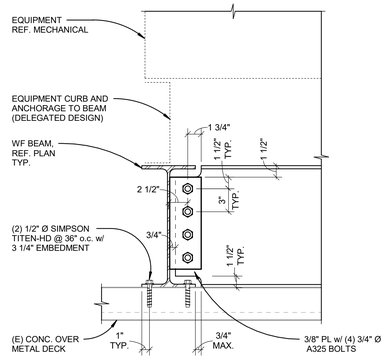
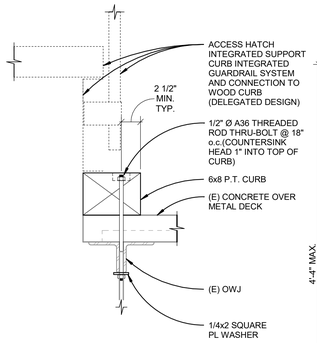
S2.02

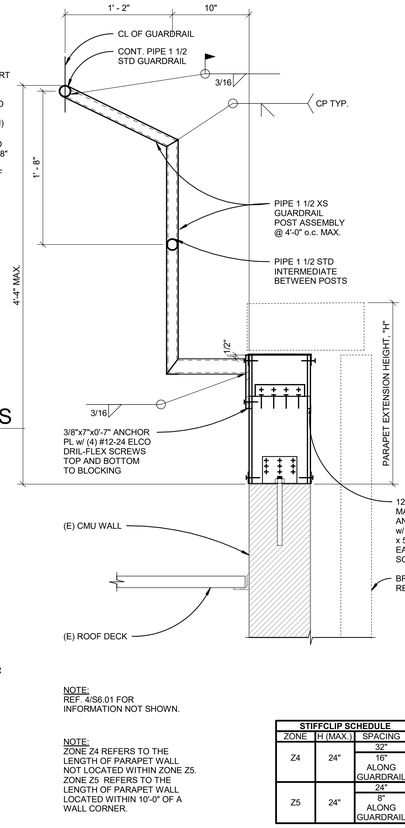


NOTE:
STRUCTURAL STEEL AND FASTENERS TO BE
HOT-DIPPED GALVANIZED.

11 MEP EQUIPMENT SUPPORT BEAM
1 1/2" = 1'-0"



7 ACCESS HATCH SUPPORT CURB- PERPENDICULAR TO DECK FLUTES
1 1/2" = 1'-0"

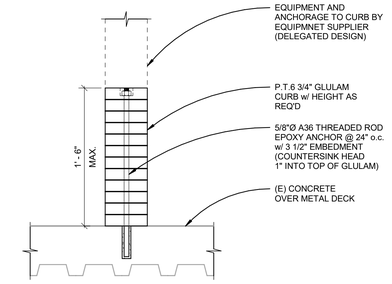


NOTE:
REF. 4/S6.01 FOR
INFORMATION NOT SHOWN.

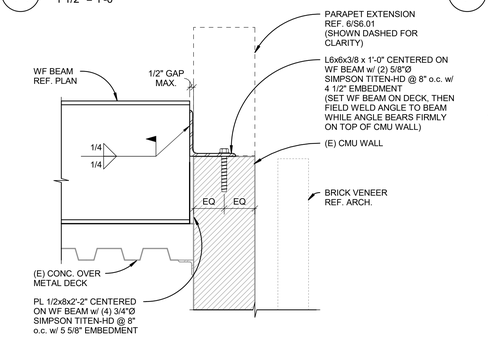
NOTE:
ZONE Z4 REFERS TO THE
LENGTH OF PARAPET WALL
NOT LOCATED WITHIN ZONE Z5.
ZONE Z5 REFERS TO THE
LENGTH OF PARAPET WALL
LOCATED WITHIN 10'-0" OF A
WALL CORNER.

STIFFCLIP SCHEDULE		
ZONE	H (MAX.)	SPACING
Z4	24"	32"
		16" ALONG GUARDRAIL
Z5	24"	24"
		8" ALONG GUARDRAIL

5 GUARDRAIL AT PARAPET EXTENSION
1 1/2" = 1'-0"

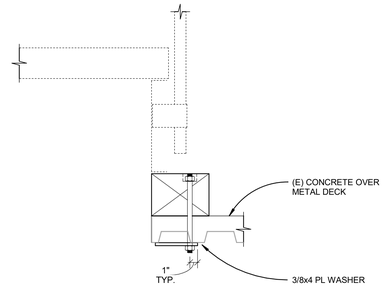


1 MEP EQUIPMENT SUPPORT CURB
1 1/2" = 1'-0"



NOTE:
REF. 4/S6.01 FOR
INFORMATION NOT SHOWN.

12 TYP. MEP EQUIPMENT SUPPORT BEAM END CONNECTION
1 1/2" = 1'-0"



NOTE:
REF. 7/S6.01 FOR INFORMATION NOT SHOWN.

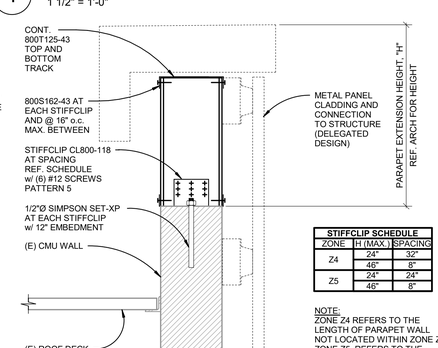
8 ACCESS HATCH SUPPORT CURB - PARALLEL TO DECK FLUTES
1 1/2" = 1'-0"

NOTE:
REF. 4/S6.01 AND 11/S6.01 FOR
INFORMATION NOT SHOWN.

NOTE:
ZONE Z4 REFERS TO THE
LENGTH OF PARAPET WALL
NOT LOCATED WITHIN ZONE Z5.
ZONE Z5 REFERS TO THE
LENGTH OF PARAPET WALL
LOCATED WITHIN 10'-0" OF A
WALL CORNER.

STIFFCLIP SCHEDULE		
ZONE	H (MAX.)	SPACING
Z4	24"	32"
		16" ALONG GUARDRAIL
Z5	24"	24"
		8" ALONG GUARDRAIL

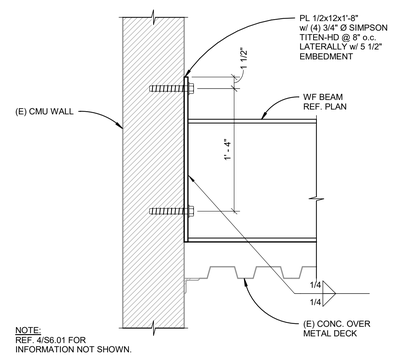
6 GUARDRAIL AT PARAPET EXTENSION
1 1/2" = 1'-0"



STIFFCLIP SCHEDULE		
ZONE	H (MAX.)	SPACING
Z4	24"	32"
	46"	8"
Z5	24"	24"
	46"	8"

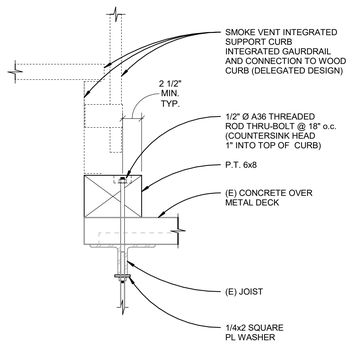
NOTE:
ZONE Z4 REFERS TO THE
LENGTH OF PARAPET WALL
NOT LOCATED WITHIN ZONE Z5.
ZONE Z5 REFERS TO THE
LENGTH OF PARAPET WALL
LOCATED WITHIN 10'-0" OF A
WALL CORNER.

2 PARAPET EXTENSION ON (E) CMU WALL - METAL PANEL CLAD.
1 1/2" = 1'-0"

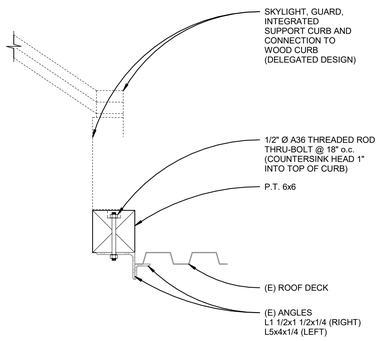


NOTE:
REF. 4/S6.01 FOR
INFORMATION NOT SHOWN.

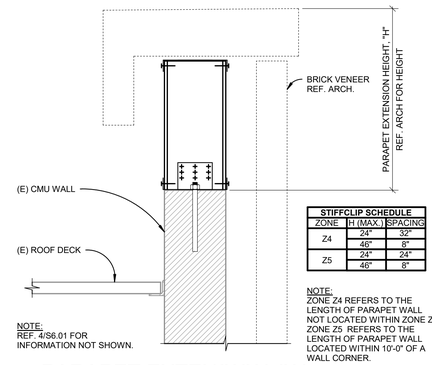
13 TYP. MEP EQUIPMENT SUPPORT BEAM END CONNECTION
1 1/2" = 1'-0"



9 SMOKE VENT SUPPORT CURB
1 1/2" = 1'-0"



10 SKYLIGHT SUPPORT CURB
1 1/2" = 1'-0"



STIFFCLIP SCHEDULE		
ZONE	H (MAX.)	SPACING
Z4	24"	32"
	46"	8"
Z5	24"	24"
	46"	8"

NOTE:
REF. 4/S6.01 FOR
INFORMATION NOT SHOWN.

NOTE:
ZONE Z4 REFERS TO THE
LENGTH OF PARAPET WALL
NOT LOCATED WITHIN ZONE Z5.
ZONE Z5 REFERS TO THE
LENGTH OF PARAPET WALL
LOCATED WITHIN 10'-0" OF A
WALL CORNER.

3 PARAPET EXTENSION ON (E) CMU WALL - BRICK CLAD.
1 1/2" = 1'-0"

4 NOT USED
1 1/2" = 1'-0"

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111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
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ENVELOPE CONSULTANT
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15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

kpff
111 SW Fifth Ave., Suite 2600
Portland, OR 97204
O: 503.227.3251
F: 503.227.7980
www.kpff.com
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ONE INCH
AT FULL SIZE

#	REVISIONS	DATE

Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

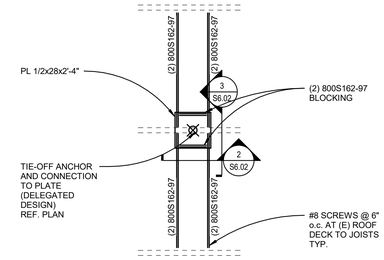
JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 78838PE OREGON MARCH 13, 2001 MARK W. TOBIN
EXPIRES: 06-30-22

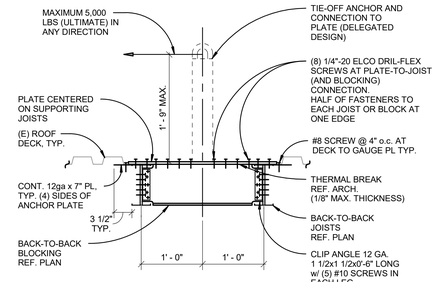
ROOF DETAILS

S6.01



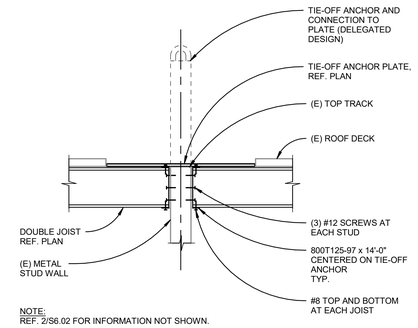
1 TYPE TOA-A TIE-OFF ANCHOR PARTIAL PLAN

1/4" = 1'-0"



2 TIE-OFF ANCHOR AT METAL JOISTS

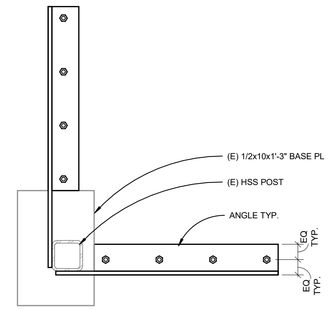
1" = 1'-0"



NOTE:
REF. 2/S6.02 FOR INFORMATION NOT SHOWN.

3 TIE-OFF ANCHOR AT METAL JOISTS

1" = 1'-0"



NOTE:
REF. 6/S6.03 FOR INFORMATION NOT SHOWN.

4 ANCHORAGE AT (E) HSS CORNER POST

1 1/2" = 1'-0"

PERMIT SET

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

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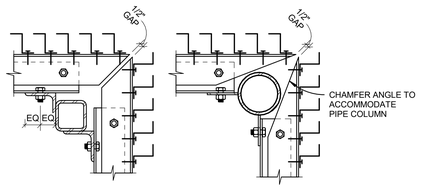
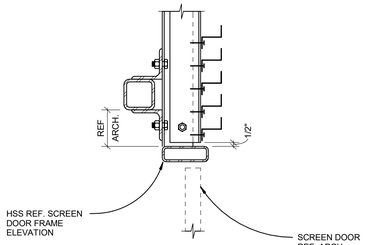


HSS POST **PIPE POST**

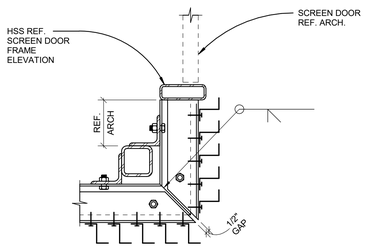
NOTE:
REF. 5/S6.03 AND 6/S6.03 FOR INFORMATION NOT SHOWN.

9 TYP. SCREEN POST CORNER
1 1/2" = 1'-0"



NOTE:
REF. 6/S6.03 FOR INFORMATION NOT SHOWN.

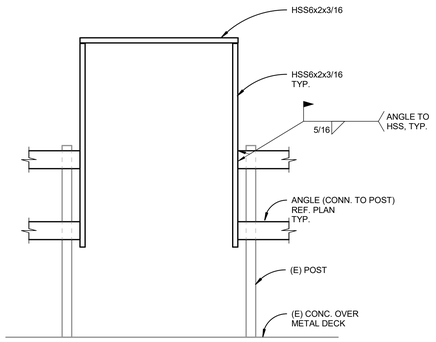
10 HSS SCREEN POST AT DOOR
1 1/2" = 1'-0"



NOTE:
REF. 5/S6.03 AND 6/S6.03 FOR INFORMATION NOT SHOWN.

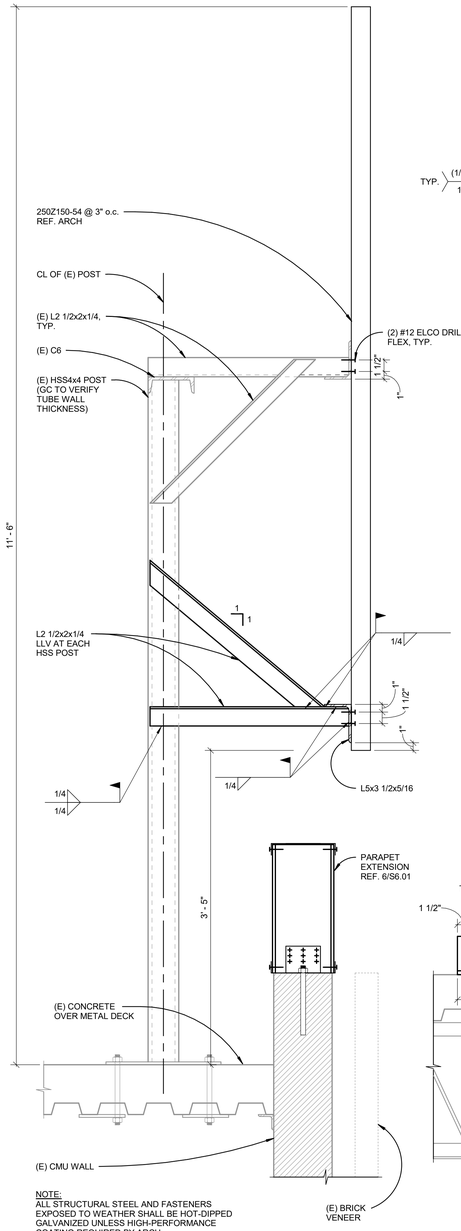
11 HSS SCREEN POST AT CORNER ADJACENT TO DOOR
1 1/2" = 1'-0"

12 NOT USED
1 1/2" = 1'-0"



NOTE:
ALL STRUCTURAL STEEL AND FASTENERS EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED UNLESS HIGH-PERFORMANCE COATING REQUIRED BY ARCH.

7 SCREEN DOOR FRAME ELEVATION
1/2" = 1'-0"



NOTE:
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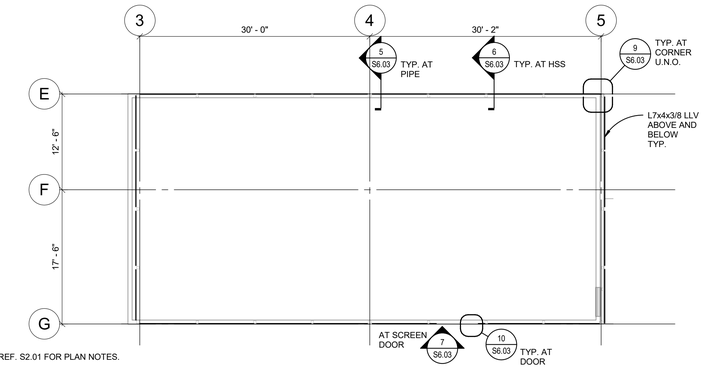
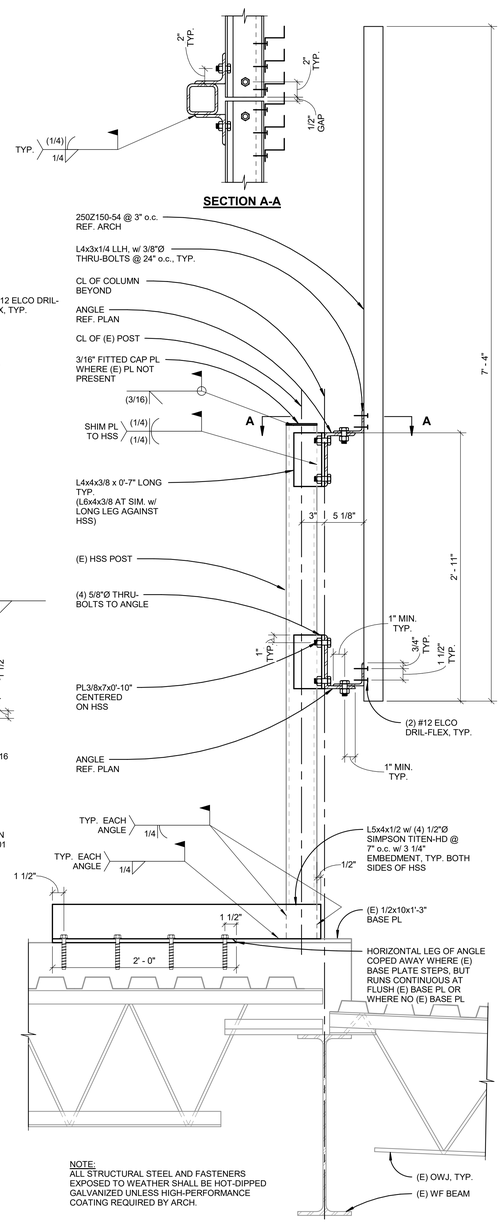
8 EAST ROOF MECHANICAL SCREEN AT HSS POST
1 1/2" = 1'-0"



NOTES:
1. REF. S2.01 FOR PLAN NOTES.
2. ALL STRUCTURAL STEEL AND FASTENERS EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED UNLESS HIGH-PERFORMANCE COATING REQUIRED BY ARCH.

4 WEST MECHANICAL YARD SCREEN FRAMING PARTIAL PLAN
1/8" = 1'-0"



NOTE:
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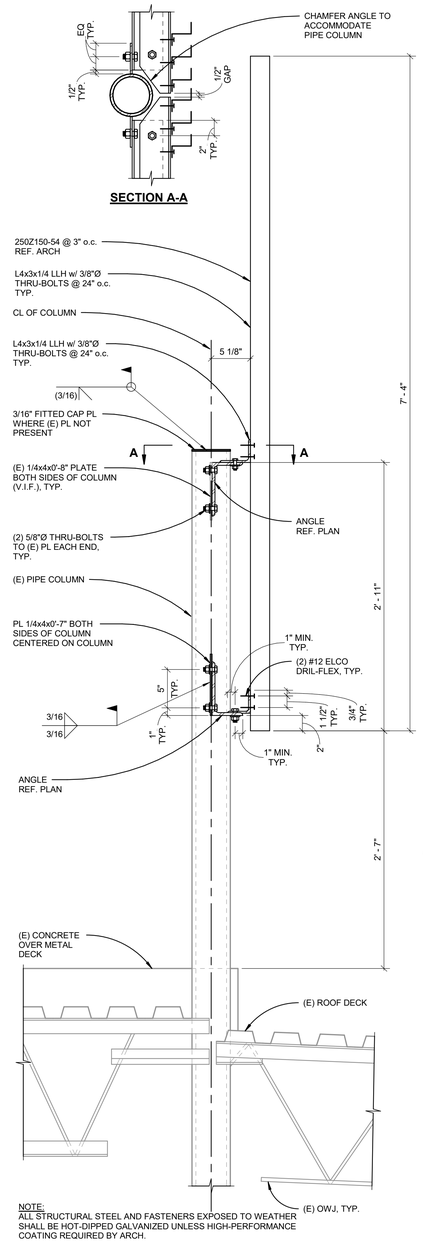
6 MAIN ROOF MECHANICAL SCREEN AT HSS POST
1 1/2" = 1'-0"



NOTE:
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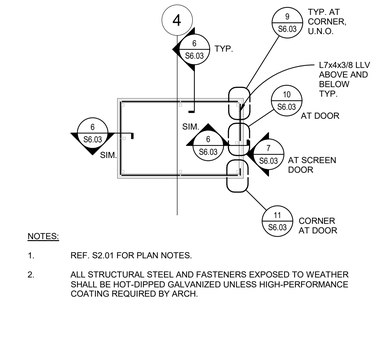
5 MAIN ROOF MECHANICAL SCREEN AT PIPE COLUMN
1 1/2" = 1'-0"



NOTES:
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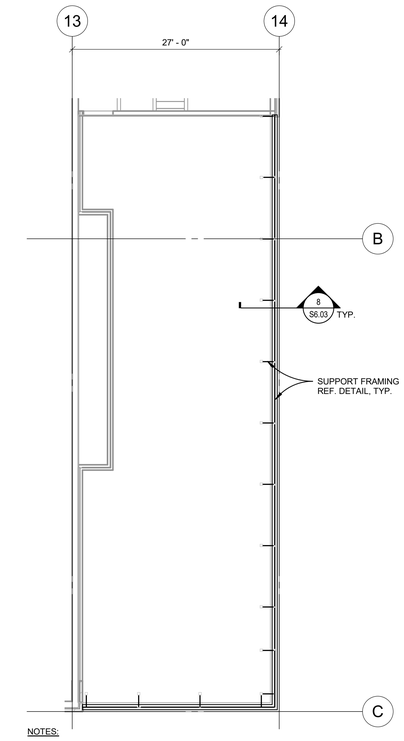
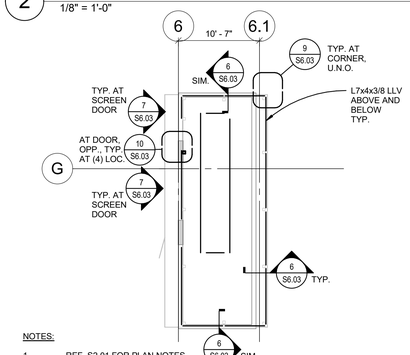
1 NORTH MECHANICAL YARD SCREEN FRAMING PARTIAL PLAN
1/8" = 1'-0"



NOTES:
1. REF. S2.01 FOR PLAN NOTES.
2. ALL STRUCTURAL STEEL AND FASTENERS EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED UNLESS HIGH-PERFORMANCE COATING REQUIRED BY ARCH.

2 EAST MECHANICAL YARD SCREEN FRAMING PARTIAL PLAN
1/8" = 1'-0"



NOTES:
1. REF. S2.01 FOR PLAN NOTES.
2. ALL STRUCTURAL STEEL AND FASTENERS EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED UNLESS HIGH-PERFORMANCE COATING REQUIRED BY ARCH.

3 SOUTH MECHANICAL YARD SCREEN FRAMING PARTIAL PLAN
1/8" = 1'-0"

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ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
AC	AIR CONDITIONING
ACCEPT	ACCEPTANCE
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
AG	AIR GAP
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AMB	AMBIENT
A	AMPERE
AP	ACCESS PANEL
APPROX	APPROXIMATELY
ARCH	ARCHITECT
ARI	AMERICAN REFIRGERATION INSTITUTE
AS	AIR SEPARATOR
AUTO	AUTOMATIC
AUX	AUXILIARY
B	BOILER
BAS	BUILDING MANAGEMENT SYSTEM
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BFP	BACKFLOW PREVENTER
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
BV	BALL VALVE OR BALANCING VALVE
BYV	BUTTERFLY VALVE
C	COMMON, CONDENSATE OR CONDUIT
CA	CONTROL AIR
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CHILLED BEAM
CC	COOLING COIL OR CONTROLS CONTRACTOR
CEG	CEILING EXHAUST GRILLE
CER	CEILING EXHAUST REGISTER
CFF	CAP FOR FUTURE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CH	CHILLER
CHV	CHECK VALVE
CL	CENTERLINE
CLG	CEILING
CO	CLEANOUT
CONN	CONNECTION
CONT	CONTINUATION
CONTR	CONTRACTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CONTROL PANEL OR CONDENSATE PUMP
CR	CONDENSATE RETURN
CRG	CEILING RETURN GRILLE
CRR	CEILING RETURN REGISTER
CSD	CEILING SUPPLY DIFFUSER
CTE	CONNECT TO EXISTING
CUFT	CUBIC FEET
CUIN	CUBIC INCHES
CV	CONSTANT VOLUME OR CONTROL VALVE
CW	COLD WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DBT	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DIFF	DIFFERENCE
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DPT	DEW POINT TEMPERATURE
DSD	DUCT SMOKE DETECTOR
DWG(S)	DRAWINGS(S)
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR OR EACH
EAD	EXHAUST AIR DAMPER
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECON	ECONOMIZER
EDB	ENTERING DRY BULB TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
EER	ENERGY EFFICIENCY RATING
EF	EXHAUST FAN
EFF	EFFICIENCY
ELEC	ELECTRICAL
EQUIP	EQUIPMENT
(ER)	EXISTING RELOCATED
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWB	ENTERING WET BULB TEMPERATURE
EXH	EXHAUST
EXT	EXTERNAL
F	FAHRENHEIT
FPB	FAN POWERED BOX
FC	FLEXIBLE CONNECTION OR FAIL CLOSED
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FF	FINAL FILTER OR FINISHED FLOOR
FFA/FFB	FROM FLOOR ABOVE/BELOW
FO	FAIL OPEN
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE/SMOKE DAMPER
FT	FOOT OR FEET
GA	GAUGE
GAL	GALLONS
GALV	GLAVANIZED
GC	GENERAL CONTRACTOR
GLV	GLOBE VALVE
GPM	GALLONS PER MINUTE
GND	GROUND
GV	GATE VALVE
H	HEIGHT
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HOR	HORIZONTAL
HP	HIGH PRESSURE
HP	HORSEPOWER
HP	HEAT PUMP
HPC	HIGH PRESSURE CONDENSATE
HPS	HIGH PRESSURE STEAM
HR	HOUR(S)
HRU	HEAT RECOVERY UNIT
HS	HUMIDITY SENSOR
HV	HOSE VALVE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HW	HEATING WATER
HWP	HEATING WATER PUMP
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	FREQUENCY (HERTZ)
ID	INSIDE DIAMETER
IN	INCH(ES)
INPLV	INTEGRATED PART LOAD VALUE
KW	KILOWATT
KWH	KILOWATT HOUR
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LDB	LEAVING DRY BULB
LF	LINEAR FEET
LP	LOW PRESSURE
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
M	MOTOR
MA	MIXED AIR
MAD	MIXED AIR DAMPER
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTORIZED CONTROL CENTER
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MERV	MINIMUM EFFICIENCY RATING VALUE
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MINIMUM OVER CURRENT PROTECTION
MV	MANUAL AIR VENT
(N)	NEW
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN OR NUMBER
NOM	NOMINAL
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAD	OUTSIDE AIR DAMPER
OAT	OUTSIDE AIR TEMPERATURE
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DAMPER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OPER	OPERATING
OV	OUTLET VELOCITY
P	PUMP OR PRESSURE OR POLE
PC	PUMPED CONDENSATE
PD	PRESSURE DROP
PF	PREFILTER
PG	PIPE GUIDE OR PRESSURE GAUGE
PH	PHASE (ELECTRICAL)
PHC	PREHEAT COIL
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SENSOR
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
QTY	QUANTITY
R	RELOCATE, RISE, RISER
RA	RETURN AIR
RAD	RETURN AIR DAMPER
RD	REFRIGERANT DISCHARGE
REF	ROOFTOP EXHAUST FAN
REFRIG	REFRIGERATION
REV	REVISE, REVISION OR REVOLUTIONS
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHT	RADIANT HEATER
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY OR SLOPE
SA	SUPPLY AIR
SCFM	CFM, STANDARD CONDITIONS
SD	SMOKE DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATING
SEN	SENSIBLE
SF	SUPPLY FAN OR SQUARE FEET
SIU	SPLIT INDOOR UNIT
SOU	SPLIT OUTDOOR UNIT
SP	STATIC PRESSURE
SPD	SPLITTER DAMPER
SPEC	SPECIFICATIONS
SQ IN	SQUARE INCH
ST	STRAINER OR SOUND TRAP
STD	STANDARD
T	THERMOSTAT (NOT TEMPERATURE SENSOR)
T	THERMOMETER
TCP	TEMPERATURE CONTROL PANEL
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TFA/TFB	TO FLOOR ABOVE/BELOW
TI	TENANT IMPROVEMENT
TRG	TRANSFER GRILLE
TS	TEMPERATURE SENSOR
TSP	TOTAL STATIC PRESSURE
TT	TEST TAP OR TEST TEE
TXV	THERMAL EXPANSION VALVE
(TYP)	TYPICAL
U	HEAT TRANSFER COEFFICIENT
UG	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT OR VOLUME OR VELOCITY
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
W	WASTE OR WIDTH OR WATTS
W/	WITH
W/O	WITHOUT
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WEG	WALL EXHAUST GRILLE
WG	WATER GAUGE
WP	WORKING PRESSURE
WPD	WATER PRESSURE DROP
WRR	WALL RETURN REGISTER
WSHP	WATER-SOURCE HEAT PUMP
WSR	WALL SUPPLY REGISTER
WT	WEIGHT
Z	ZONE
ZD	ZONE DAMPER

HVAC LEGEND

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS ARE APPLICABLE TO THIS PROJECT. REFER TO DETAILS AND NOTES FOR MOUNTING HEIGHTS.

GENERAL

SYMBOL	DESCRIPTION
	NEW WORK
(E)	EXISTING WORK TO REMAIN
(D)	EXISTING WORK TO BE REMOVED
(F)	FUTURE WORK
(ER)	EXISTING RELOCATED
℄	CENTER LINE
	POINT OF CONNECTION OR POINT OF DISCONNECTION
1 / M-1	DETAIL 1, DRAWING M-1
A / M-1	SECTION A, DRAWING M-1
1 / M-1	ELEVATION 1, DRAWING M-1
EXH / 1	RISER IDENTIFICATION EXHAUST #1
HP / 1	EQUIPMENT IDENTIFICATION HEAT PUMP UNIT #1
1	KITCHEN EQUIPMENT TAG
#	KEYED NOTE
150	DIRECTION OF TRANSFER AIRFLOW (150 CFM)
78°F	78 DEGREES FAHRENHEIT

PIPING

SYMBOL	DESCRIPTION
	DIRECTION OF SLOPE
	DIRECTION OF FLOW
	PIPE UP (OR UP & DOWN WITH NOTATION)
	PIPE DOWN
	PIPE DROP/PIPE RISE
	TOP CONNECTION - BRANCH LINE
	BOTTOM CONNECTION - BRANCH LINE
	PIPE ANCHOR
	TEE UP
	TEE DOWN
	STRAINER
	STRAINER WITH BLOW OFF
	INLINE PUMP
	BASE MOUNTED PUMP
	TEST TAP (PETE'S PLUG)
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	VACUUM BREAKER
	VENT THRU ROOF
	PIPE GUIDE
	EXPANSION JOINT
	FLEXIBLE CONNECTOR
	UNION
	CAPPED OR PLUGGED TEE
	BLIND FLANGE, CAP
	CONCENTRIC REDUCER
	EXPANSION LOOP
	VALVE ON RISE
6"	PIPE SIZE (DIAMETER IN INCHES)

VALVES & GAUGES

SYMBOL	DESCRIPTION
	BALL VALVE
	SOLENOID CONTROL VALVE
	PRESSURE AND TEMP. RELIEF VALVE
	BUTTERFLY VALVE
TS	MOTORIZED BUTTERFLY VALVE
	GATE VALVE
	BALANCING VALVE
	ANGLE GATE VALVE
	GLOBE VALVE
	ANGLE GLOBE VALVE
	CHECK VALVE
	2-WAY CONTROL VALVE
	3-WAY CONTROL VALVE
	NON-SLAM WAFER CHECK VALVE
	PRESSURE REDUCING VALVE (PRV)
	DIAPHRAGM VALVE
	LOCK SHIELD VALVE
	NEEDLE VALVE
	QUICK OPENING VALVE
	VENTURI FLOW METER
	PRESSURE GAUGE
	PRESS. GAUGE WITH COCK AND SNUBBER
	THERMOMETER

HYDRONIC

SYMBOL	DESCRIPTION
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN

CONTROLS

WALL / CEILING MOUNTED DEVICE

SYMBOL	DESCRIPTION
TS	TEMPERATURE SENSOR
T	THERMOSTAT OR THERMOMETER
CO2	CARBON DIOXIDE SENSOR
OS	OCCUPANCY SENSOR
H	HUMIDITY SENSOR OR HUMIDISTAT
SP	STATIC PRESSURE SENSOR
RS	REFRIGERANT SENSOR
CO	CARBON MONOXIDE SENSOR
H	HYDROGEN SENSOR

EQUIPMENT / SYSTEM MOUNTED DEVICE

SYMBOL	DESCRIPTION
DSD	DUCT SMOKE DETECTOR
TS	TEMPERATURE SENSOR
SP	STATIC PRESSURE SENSOR
PS	PRESSURE SENSOR OR SWITCH
DPS	DIFFERENTIAL PRESSURE SENSOR
AFMS	AIR FLOW MEASURING STATION
HS	HUMIDITY SENSOR
FS	FLOW SENSOR OR SWITCH
FM	FLOW METER
CS	CURRENT SENSOR
M	MOTOR
A	ACTUATOR
HM	HYDROGEN MONITOR
RM	REFRIGERANT MONITOR
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
BAS	BUILDING AUTOMATION SYSTEM
PI	PULSING INPUT

MISCELLANEOUS

SYMBOL	DESCRIPTION
RD	REFRIGERANT DISCHARGE
RS	REFRIGERANT SUCTION
	PNEUMATIC CONTROL VALVE
A	AIR LINE
ST	SOUND TRAP
CC	COOLING COIL
HC	HEATING COIL
RHT	RADIANT HEATER
BHT	BASEBOARD HEATER
CB	CHILLED BEAM
	THRUST BLOCK

DUCTWORK

SYMBOL	DESCRIPTION
AD/AP	ACCESS DOOR / ACCESS PANEL
	FLEXIBLE CONNECTION
	FLEXIBLE DUCT RUNOUT TO DIFFUSER
12x6	RECTANGULAR DUCT SIZE (WIDTH x DEPTH IN INCHES)
18ø	ROUND DUCT SIZE (DIAMETER IN INCHES)
24x12ø	OVAL DUCT SIZE (WIDTH x DEPTH IN INCHES)
	DUCT THROUGH BEAM PENETRATION
R, D	DUCT OFFSET (RISE OR DROP)
VD, RVD	VOLUME DAMPER OR REMOTE VOLUME DAMPER
FD, SD, FSD	FIRE, SMOKE OR FIRE/SMOKE DAMPER
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	EXHAUST DUCT UP
	EXHAUST DUCT DOWN
	RETURN DUCT UP
	RETURN DUCT DOWN
	CROSS SECTION OF SUPPLY DUCT
	CROSS SECTION OF EXHAUST AIR DUCT
	CROSS SECTION OF RETURN AIR DUCT
	CROSS SECTION OF ROUND DUCT
	DUCT ELBOW WITH TURNING VANES
	SMOOTH RADIUS DUCT ELBOW WITHOUT TURNING VANES
	CONICAL BRANCH FITTING
	45 DEGREE BOOT LO-LOSS BRANCH FITTING
	WYE BRANCH FITTING
12x6	ACOUSTICAL LINING DUCT (DIMENSION IS INSIDE DIMENSION)
M	MOTORIZED DAMPER INSIDE DUCT
TAG NECK SIZE-CFM	TRANSFER DUCT (WITH LINER)
8' - 11" BOD	INDICATES 8'11" TO BOTTOM OF DUCT
TAG NECK SIZE-CFM	RECTANGULAR OR ROUND SUPPLY DIFFUSER OR REGISTER (SEE SCHEDULE). 4-WAY THROW UNLESS INDICATED OTHERWISE. EXAMPLE: SB12X12-400 REFERS TO TAG SB WITH 12"X12" NECK AND 400 CFM
TAG NECK SIZE-CFM	RECTANGULAR OR ROUND EXHAUST GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-CFM	RECTANGULAR OR ROUND RETURN GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-CFM	WALL SUPPLY GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-CFM	WALL RETURN OR EXHAUST GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-LENGTH-CFM	LINEAR SLOT DIFFUSER (SEE SCHEDULE FOR NUMBER OF SLOTS). 2-WAY THROW UNLESS NOTED OTHERWISE. EXAMPLES: SN10-48-250 REFERS TO TAG SN WITH 10" ROUND NECK, 48" SLOT LENGTH AND 250 CFM.
	VARIABLE AIR VOLUME TERMINAL UNIT
	VARIABLE AIR VOLUME TERMINAL UNIT W/ REHEAT
	FAN POWERED TERMINAL UNIT
	FAN POWERED TERMINAL UNIT W/ REHEAT

HVAC DRAWING LIST

SHEET NUMBER	SHEET NAME	100%DD	PERMIT SET
M0.00	MECHANICAL LEGEND AND ABBREVIATIONS	X	X
M0.01	SCHEDULES	X	X
M0.02	GENERAL NOTES	X	X
M0.03	VENT SCHEDULES		X
MD1.01	DEMO - MAIN LEVEL PLAN - HVAC	X	X
MD1.02	DEMO - ROOF PLAN -HVAC	X	X
M2.01	MAIN LEVEL PLAN - HVAC	X	X
M2.02	ROOF PLAN - LOWER ROOF - HVAC	X	X
M2.03	ROOF PLAN - UPPER ROOF - HVAC	X	X
M6.00	ENLARGED PLANS		X
M8.01	CONTROLS AND SEQUENCE OF OPERATION		X
M8.02	CONTROLS AND SEQUENCE OF OPERATION		X
M8.03	CONTROLS AND SEQUENCE OF OPERATION		X
M9.01	MECHANICAL DETAILS	X	X
M9.02	MECHANICAL DETAILS	X	X

BASIS OF DESIGN

A. THIS BUILDING IS AN EXISTING 1980S EVENT CENTER WITH MULTI-PURPOSE CONFERENCE SPACES, LECTURE HALL AND MUSIC PERFORMANCE AUDITORIUM. THE PRIMARY SCOPE OF WORK IS REPLACEMENT OF THE MAIN ROOF AND REPLACEMENT OF EXISTING HVAC ROOF EQUIPMENT.
B. THE DESIGN INCLUDES THE FOLLOWING NOTABLE FEATURES, BUT IS NOT LIMITED TO THIS SCOPE. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL CONTRACT DOCUMENTS AND COORDINATING WITH ALL DISCIPLINES.
   1. MULTI-ZONE AIR DISTRIBUTION: SUPPLY AIR IS VARIABLE VOLUME AND DISTRIBUTED TO EACH UNIQUE THERMAL ZONE VIA MEDIUM PRESSURE DUCTWORK TO VARIABLE AIR VOLUME TERMINAL UNITS. THE RETURN AIR DUCTWORK UTILIZES THE CEILING SPACE AS A RETURN AIR PLENUM.
   2. EXISTING PACKAGE AIR HANDLING UNITS (SF-5 & SF-6): PACKAGED UNITS WITH EVAPORATIVE CONDENSERS, GAS FURNACE, POWER EXHAUST AND MODULATING ECONOMIZER.
   3. NEW CUSTOM AIR HANDLING UNITS (SF-1, SF-2, SF-3, SF-4A, SF-4B): MULTI-ZONE AND SINGLE ZONE CUSTOM AIR HANDLING UNITS TO REPLACE EXISTING. SERVED BY DEDICATED REMOTE CONDENSING UNITS FOR COOLING COIL. AIR HANDLERS WITH DIRECT DRIVE SUPPLY AND RETURN FANS, MODULATING DAMPERS, AND AIR ECONOMIZER FUNCTION.
   4. HEATING: EXISTING HYDRONIC HEATING SYSTEM BOILER B-1 TO BE DEMOLISHED, AND VAV TERMINAL UNITS IN THIS ZONE TO BE REPLACED WITH NEW ELECTRIC RE-HEAT UNITS. SF-3 WILL BE REMOVED FROM BOILER B-2 HYDRONIC SYSTEM AND BE PROVIDED WITH GAS HEAT. EXISTING HYDRONIC HEATING SYSTEM BOILER B-2 TO BE DEMOLISHED WITH GAS HEAT PROVIDED FOR SF-4A AND SF-4B.
   5. GENERAL EXHAUST: EXISTING EXHAUST FANS TO REMAIN, TEMPORARILY REMOVED AND RE-INSTALLED. RECONNECT TO CENTRAL BAS.
   6. CONTROLS: EXISTING BUILDING AUTOMATION SYSTEM (BAS) TO OPERATE ALL SYSTEM FUNCTIONS AND SCHEDULES, WITH EXISTING PNEUMATIC CONTROLS FOR VAV TERMINAL UNITS TO BE REPLACED WITH NEW DIGITAL CONTROLS.
C. CODES AND STANDARDS
   1. OREGON BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AHJ):
      a. 2019 OREGON MECHANICAL SPECIALTY CODE (OMSC) BASED ON THE 2018 INTERNATIONAL MECHANICAL CODE (IMC) AND THE 2018 INTERNATIONAL FUEL GAS CODE (IFGC) WITH STATE AMENDMENTS.
      b. 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC) BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC).
      c. 2021 OREGON PLUMBING SPECIALTY CODE (OPSC) BASED ON THE 2021 UNIFORM PLUMBING CODE (UPC).
      d. 2017 OREGON ELECTRIC SPECIALTY CODE (BASED ON THE 2017 NATIONAL ELECTRIC CODE (NEC) WITH STATE AMENDMENTS.
      e. 2021 OREGON ENERGY EFFICIENCY SPECIALTY CODE (OEESC) BASED ON TBASED ON ASHRAE 90.1-2019
   2. AMERICANS WITH DISABILITIES ACT (ADA).
   3. ASHRAE 2020 HANDBOOK, HVAC SYSTEMS AND EQUIPMENT.
   4. ASHRAE 2019 HANDBOOK, HVAC APPLICATIONS.
   5. ASHRAE 2018 HANDBOOK, REFRIGERATION.
   6. ASHRAE 2017 HANDBOOK, FUNDAMENTALS.
   7. ASHRAE 55-2017 THERMAL ENVIRONMENTAL CONDITIONS FOR HUMAN OCCUPANCY.
   8. ASHRAE 62.1-2016 VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY.
   9. ASHRAE 90.1-2016 ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS.
   10. NFPA 90A: STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS.
   11. NFPA 90B: STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR-CONDITIONING SYSTEMS.
   12. NFPA 101: LIFE SAFETY CODE.
D. OUTDOOR DESIGN CONDITIONS:
   1. LOCATION: CORVALLIS, OR
   2. SUMMER: 96°F DB/67°F WB
   3. WINTER: 17°F
   4. ELEVATION: 235 FEET ABOVE SEA LEVEL.
   5. CLIMATE ZONE: 4
E. INDOOR DESIGN CONDITIONS: BASED ON +/-2°F CONTROL ACCURACY FROM SETPOINTS.
   1. ALL CONDITIONED AREAS:
      a. COOLING: 76°F
      b. HEATING: 68°F
   2. HUMIDITY CONTROL: NONE UNLESS OTHERWISE NOTED. NO ACTIVE HUMIDIFICATION SYSTEMS.
F. OREGON VENTILATION CRITERIA:
   1. COMPLY WITH ASHRAE 62.1.
   2. OCCUPANCY LOADS:
      a. MINIMUM VENTILATION REQUIREMENTS BASED ON LATEST EDITION OF ASHRAE STANDARDS 62.
      b. USE ACTUAL PLANNING DATA PLUS 10%. REFER TO ASHRAE VALVES OF 250 BTUH PER PERSON.
      c. GENERAL OFFICE: ONE PERSON PER 80 SQ. FT.
      d. CONFERENCE ROOMS: ONE PERSON PER CHAIR PLUS 20%.
      f. CLASSROOMS: BASE ON ONE PERSON PER SEAT.
G. EXHAUST TO OUTDOORS (MINIMUM RATES):
   1. TOILET ROOMS: 12 AIR CHANGES PER HOUR OR 75 CFM/FIXTURE, WHICHEVER IS GREATER.
H. BUILDING ENVELOPE: EXISTING STRUCTURE WITH RENOVATIONS
   1. GLAZING:
      a. EXISTING GLAZING: DOUBLE PANE W/ ALUMINUM FRAMES NON-THERMALLY BROKEN (U-0.75, SHGC-0.70)
      b. NEW GLAZING: FIXED (U-0.36, SHGC-0.40)
      c. NEW SKYLIGHT: METAL FRAME WITH THERMAL BREAK (U-0.50, SHGC-0.40)
   2. WALL CONSTRUCTION:
      a. EXISTING: 8-INCH / 10-INCH MASONRY, 2.5-INCH RIGID INSULATION (U-0.048)
      b. TYPE BB: 8-INCH MASONRY (U-0.064)
      c. TYPE DD: STEEL-FRAME 16-INCH O.C. (U-0.064)
   3. ROOF CONSTRUCTION:
      a. TYPE R-1 & R-2: INSULATED ABOVE DECK, U-0.028
      b. TYPE R-3: INSULATED ABOVE DECK, U-0.023
I. INTERNAL HEAT GAINS:
   1. LIGHTING: NEW LIGHTING TO COMPLY WITH OREGON ENERGY CODE
      a. COMMON SPACE: 0.59 W/SF
      b. MEETING ROOMS: 0.97 W/SF
      c. CORRIDOR: 0.41 W/SF
      d. STORAGE: 0.43 W/SF
      e. ADMIN ARA: 0.74 W/SF
      f. LOBBBY/GALLERY: 1.25 W/SF
   2. RECEPTACLE POWER IN OFFICES AREAS: 0.5 W/SQ.FT.
   3. OCCUPANCY CRITERIA IN OREGON:
      a. OFFICE OCCUPANT: 250 BTUH SENSIBLE/205 BTUH LATENT
      b. GENERAL OFFICE: 1 PERSON PER 80 SQ. FT
      c. CONFERENCE: ONE PERSON PER CHAIR PLUS 20%
      d. CLASSROOM: ONE PERSON PER SEAT
   4. ZONING CRITERIA:
      a. PRIVATE OFFICES: ONE ZONE (TEMPERATURE SENSOR) PER FOUR PRIVATE OFFICES AND ONE PER EACH CORNER OFFICE.
      b. CONFERENCE ROOMS: ONE ZONE (TEMPERATURE SENSOR) PER ROOM
      c. LOBBY: ONE ZONE (TEMPERATURE SENSOR), SEE PLANS
      d. CLASSROOM: ONE ZONE (TEMPERATURE SENSORS) PER ROOM
J. DUCTWORK DESIGN CRITERIA:
   1. DESIGN DUCTWORK TO PROVIDE HIGH EFFICIENCY OPERATION WITH MINIMAL ACOUSTICAL NOISE. DUCT STATIC PRESSURE FRICTION LOSS SHALL NOT EXCEED 0.2" PER 100 FEET IN MECHANICAL ROOMS AND SHAFTS. LOW PRESSURE SUPPLY DUCT STATIC PRESSURE FRICTION LOSS BASED ON A MAXIMUM OF 0.08" PER 100 FEET. LOW PRESSURE RETURN AND EXHAUST DUCT STATIC PRESSURE FRICTION LOSS BASED ON A MAXIMUM OF 0.06" PER 100 FEET. MEDIUM PRESSURE DUCTWORK SHALL NOT EXCEED A DUCT STATIC PRESSURE FRICTION LOSS BASED ON A MAXIMUM OF 0.1" PER 100 FEET.
   2. MAXIMUM SUPPLY, RETURN AND EXHAUST DUCT AIR FLOW VELOCITIES, REGARDLESS OF PRESSURE DROP, SHALL NOT EXCEED THE FOLLOWING CRITERIA:
      a. MAINS ABOVE CEILING: 1750 FPM
      b. BRANCHES ABOVE CEILING: 1400 FPM
      c. RUN-OUTS TO DIFFUSERS: 725 FPM
      d. IN SHAFTS: 2500 FPM
K. ACOUSTICAL:
   1. THE FOLLOWING NOISE NC/RC CRITERIA LEVELS WILL BE ACHIEVED AND AS DEFINED IN THE ASHRAE HVAC APPLICATIONS HANDBOOK. THESE LEVELS ADDRESS THE MECHANICAL SYSTEMS ONLY. ACTUAL SOUND PERFORMANCE REQUIREMENTS FOR EACH SPACE MUST BE VERIFIED WITH ACOUSTICAL CONSULTANT, AND SHALL NOT EXEED EXISTING CONDITIONS.
      a. CONFERENCE ROOMS: 30
      b. PRIVATE OFFICES: 30
      c. CORRIDORS: 40
      d. LOBBIES: 35
      e. CLASSROOMS: 30
L. COILS IN AIR HANDLING UNITS:
   1. MAXIMUM FACE VELOCITY: 450 FPM (590 FPM FOR SPECIFIED SELECTIONS, SEE SCHEDULE)
   2. MAXIMUM FINS PER INCH: 12
   3. MAXIMUM AIR PRESSURE DROP-COOLING COIL: 1.5" W.C. (WET COIL)
   4. MAXIMUM AIR PRESSURE DROP–HEATING COIL: 0.25" W.C.
M. AIR FILTERS:
   1. FILTERS: MERV-13 (MINIMUM)
O. SEISMIC:
   1. ANCHORAGE AND RESTRAINTS MUST BE COORDINATED WITH STRUCTURAL ENGINEER AND AUTHORITY HAVING JURISDICTION.
P. THE HVAC SYSTEM INCLUDES THE FOLLOWING SUSTAINABLE DESIGN FEATURES:
   1. SELECTED REFRIGERANTS AND HVAC EQUIPMENT THAT MINIMIZE AND ELIMINATE THE EMISSION OF COMPOUNDS THAT CONTRIBUTE TO OZONE DEPLETION. NO CFC BASED REFRIGERANTS ARE USED IN THE BUILDING HVAC SYSTEM.
   3. DEVELOP AND IMPLEMENT A MEASUREMENT AND VERIFICATION PLAN CONSISTENT WITH IPMVP OPTION B OR D. INSTALL THE NECESSARY METERING AND SUB METERING EQUIPMENT TO MEASURE ENERGY USE.
   4. PROVIDE INDOOR AIR QUANTITIES TO MEET MINIMUM REQUIREMENTS OF SECTIONS 4 THROUGH 7 OF ASHRAE STANDARD 62.1-2019.
   5. INSTALL CARBON DIOXIDE MONITORING SYSTEMS TO ENSURE THAT VENTILATION SYSTEMS MAINTAIN DESIGN MINIMUM REQUIREMENTS.
   6. USE VARIABLE FREQUENCY DRIVES TO OPERATE FANS.

bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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#	REVISIONS	DATE

Oregon State University
LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER
81596PE
OREGON
JANUARY 8, 2009
STEVEN A. NOLLKAMPER
DocuSigned by: Steve Nollkamper
5B48AE5AAC047D...

PERMIT SET

MECHANICAL LEGEND AND ABBREVIATIONS

M0.00

2/18/2022 12:39:21 PM

AIR HANDLING UNIT SCHEDULE

					SUPPLY FAN									RETURN FAN							DX COOLING (AT 96 F AMBIENT)					GAS HEATING						ELECTRICAL			FILTER				
TAG	#	MANUFACTURER	MODEL	LOCATION	MAX AIRFLOW COOLING (CFM)	MIN AIRFLOW HEATING (CFM)	OUTSIDE AIR (CFM)	ESP (IN WG)	TSP (IN WG)	QTY	DRIVE	BHP	HP	VFD (Y/N)	AIR FLOW (CFM)	ESP (IN WG)	TSP (IN WG)	QTY	DRIVE	BHP	HP	VFD (Y/N)	TOTAL (MBH)	SENSIBLE (MBH)	AIRFLOW (CFM)	VEL (FPM)	APD (IN WG)	EAT DB/WB (F)	LAT DB/WB (F)	REFRIG TYPE	INPUT (MBH)	OUTPUT (MBH)	AIRFLOW (CFM)	VEL (FPM)	APD (IN WG)	EAT (F)	LAT (F)	VOLTS	PH	SINGLE POC (Y/N)	EMERG POWER (Y/N)	TYPE	MERV	UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
SF	1	BASX	22 PLENUM	ROOF	8060	4900	1810	1.5	4	1	DIRECT	7.0	7.5	Yes	6250	1	1.5	1	DIRECT	2.6	5	Yes	260.0	235.0	8060	504	0.56	81 / 64	57 / 53	R410A	-	-	-	-	-	-	-	480	3	Yes	No	4" ANGLE FILTER RACK	13	265x79x52	4,500	1-13,15
SF	2	BASX	24 PLENUM	ROOF	12700	6300	2400	1.5	4	1	DIRECT	11.4	15	Yes	10300	1	1.5	1	DIRECT	4.7	5	Yes	410.0	394.0	12700	4767	0.51	81 / 63	52 / 52	R410A	-	-	-	-	-	-	-	480	3	Yes	No	4" ANGLE FILTER RACK	13	224x53x50	8,000	1-13, 15
SF	3	BASX	20 PLENUM	ROOF	4000	4000	1900	1.5	3.4	1	DIRECT	3.4	5	Yes	2100	1	1.5	1	DIRECT	1.2	2	Yes	140.0	141.0	4000	450	0.33	87 / 64	54 / 52	R410A	250	200	3600	320	0.22	54.0	96.0	480	3	Yes	No	4" ANGLE FILTER RACK	13	224x63x43	4,500	1-15
SF	4A	DAIKIN	RFS042D	BACKSTAGE ROOF	16000	3200	500	1	5.25	1	DIRECT	17.5	20	Yes	11000	1	1	1	DIRECT	4.4	5	Yes	524.0	524.0	16000	590	1.42	84 / 64.8	54 / 54	R410A	625	500	16000	590	0.12	53.0	82.0	480	3	Yes	No	4" ANGLE FILTER RACK	13	244x94x56	7000	1-15
SF	4B	DAIKIN	RFS042D	BACKSTAGE ROOF	16000	3200	500	1	5.25	1	DIRECT	17.5	20	Yes	11000	1	1	1	DIRECT	4.4	5	Yes	524.0	524.0	16000	590	1.42	84 / 64.8	54 / 54	R410A	625	500	16000	590	0.12	53.0	825.0	480	3	Yes	No	4" ANGLE FILTER RACK	13	244x94x56	7000	1-15

NOTES
1. PROVIDE NON-OVERLOADING NEMA PREMIUM EFFICIENCY INVERTER READY MOTOR.
2. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
3. PROVIDE VARIABLE FREQUENCY DRIVE (VFD) FOR EACH FAN MOTOR BY MECHANICAL AND WIRED BY ELECTRICAL.
4. PROVIDE MOTOR SHAFT GROUNDING SYSTEM FOR EACH MOTOR CONTROLLED BY VFD.
5. PROVIDE FACTORY-INSTALLED INTERNAL WIRING TO FAN MOTORS AND GFCI CONVENIENCE RECEPTACLES AS NECESSARY FOR SINGLE POINT OF ELECTRICAL CONNECTION.
6. PROVIDE TWO (2) 120 VOLT GFCI CONVENIENCE RECEPTACLES
7. PROVIDE CURB TO BE INSTALLED ON STRUCTURAL WIDE FLANGE. CURB TO HAVE 1-INCH SPRING DELFECTION PER VIBRATION ISOLATION AND SEISMIC RESTRAINT SPECIFICATIONS.
8. PROVIDE SMOKE DETECTORS FOR AUTOMATIC UNIT SHUTDOWN FOR AIRFLOWS ABOVE 2000 CFM.
9. PROVIDE OSA DAMPERS.
10. PROVIDE AIRFLOW MEASUREMENT STATIONS AT OSA DAMPER.
11. STATIC PRESSURE TO ACCOUNT FOR FILTER LOADING. PROVIDE MAGNEHELIC DIFFERENTIAL PRESSURE GAUGES ACROSS EACH FILTER BANK. "RED LINE" GAUGES TO INDICATE CHANGE-OUT PRESSURE DROP.
12. FAN SHALL BE A SINGLE WIDTH SINGLE INLET BACKWARD INCLINED CENTRIFUGAL AIRFOIL, DIRECT DRIVE ARRANGEMENT IV AS SPECIFIED.
13. FIELD MOUNT VFDS AND COORDINATE ELECTRICAL CONNECTIONS WITH DIV 26.
14. GAS BURNER TURNDOWN RATIO TO BE 10:1 (SF-3) AND 20:1 (SF-4A & SF-B).
15. AIR HANDLING UNIT TO HAVE CUSTOM SHEET METAL PLENUM BOX TO CONNECT EXISTING ROOF DUCT PENETRATIONS TO NEW AIR HANDLING INLET AND/OR DISCHARGE. CONTRACTOR RESPONSIBLE TO FIELD VERIFY ALL EXISTING ROOF PENETRATIONS FOR CURB DESIGN.

EQUIPMENT - SOUND PERFORMANCE DATA

TAG		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	VIBRATION ISOLATION
SF-1	SUPPLY FAN	82	85	92	87	78	74	71	68	SPRING: 1-INCH MIN DEFLECTION
		85	88	92	90	85	80	78	74	
	RETURN FAN	75	78	80	75	69	66	62	57	
		75	79	82	79	74	73	68	61	
SF-2	SUPPLY FAN	83	88	98	89	82	81	79	73	SPRING: 1-INCH MIN DEFLECTION
		90	92	95	94	90	86	83	78	
	RETURN FAN	81	88	83	74	74	73	66	58	
		84	88	85	81	80	78	72	63	
SF-3	SUPPLY FAN	85	85	92	78	71	63	61	64	SPRING: 1-INCH MIN DEFLECTION
		84	87	92	83	77	70	67	64	
	RETURN FAN	74	78	77	71	69	70	68	65	
		75	77	78	72	70	70	68	68	
SF-4A/4B SUPPLY FAN	INLET	92	91	92	87	86	81	73	66	SPRING: 1-INCH MIN DEFLECTION
	DISCHARGE	86	82	76	71	67	60	52	44	
	RADIATED	0	94	91	89	89	85	83	82	
SF-4A/4B RETURN FAN	INLET	85	86	81	79	78	73	65	57	SPRING: 1-INCH MIN DEFLECTION
	DISCHARGE	81	78	72	68	64	58	50	42	
	RADIATED	0	94	91	89	89	85	83	82	
CU-1	RADIATED	0	83	77	80	82	79	74	67	SPRING: 1.5-INCH MIN DEFLECTION
CU-2	RADIATED	0	91	81	82	83	79	74	70	SPRING: 1.5-INCH MIN DEFLECTION
CU-3	-	THE TOTAL AVERAGE SOUND POWER FOR THE UNITS ARE: RCS12F = 88 dB, THE SOUND POWER BY OCTAVE BAND IS NOT AVAILABLE FOR THESE UNITS								SPRING: 1.5-INCH MIN DEFLECTION
CU-4A/4B	RADIATED	-	94	91	89	89	85	83	82	SPRING: 1.5-INCH MIN DEFLECTION

VAV TERMINAL UNIT - SOUND PERFORMANCE DATA

TAG	SOUND DESCRIPTION	RADIATED SOUND PWL 2	3	4	5	6	7	NC	ROOM CRITERIA NC	DISCHARGE SOUND PWL 2	3	4	5	6	7	NC	ROOM CRITERIA NC
VAV-01	PRIMARY SOUND	60	50	42	38	36	31	*		74	64	54	46	41	38	*	
DESV 08 - 08	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	40	27	29	40	51	53	39	*	35
CFM: 600 DPS: 0.03	ROOM SOUND LEVEL	42	31	22	12	-	-	22		47	35	14	-	-	-	28	
VAV-02	PRIMARY SOUND	59	54	43	37	33	28	*		72	66	56	47	42	39	*	
DESV 06 - 06	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	27	29	40	51	53	39	*	35
CFM: 420 DPS: 0.14	ROOM SOUND LEVEL	41	35	23	11	-	-	22		45	37	16	-	-	-	25	
VAV-03	PRIMARY SOUND	59	48	42	36	33	28	*		73	63	55	47	43	40	*	
DESV 09 - 09	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 840 DPS: 0.09	ROOM SOUND LEVEL	41	29	22	10	-	-	20		44	33	14	-	-	-	24	
VAV-04	PRIMARY SOUND	60	51	46	40	36	30	*		74	65	59	50	46	43	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	40
CFM: 1475 DPS: 0.15	ROOM SOUND LEVEL	42	32	26	14	-	-	22		45	35	18	-	-	-	25	
VAV-05	PRIMARY SOUND	60	51	47	41	36	30	*		74	65	59	50	47	43	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 1550 DPS: 0.16	ROOM SOUND LEVEL	42	32	27	15	-	-	22		45	35	18	-	-	-	25	
VAV-06	PRIMARY SOUND	60	51	47	41	36	30	*		74	65	59	50	47	43	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 1550 DPS: 0.16	ROOM SOUND LEVEL	42	32	27	15	-	-	22		45	35	18	-	-	-	25	
VAV-07	PRIMARY SOUND	60	51	47	41	36	30	*		74	65	59	50	47	43	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 1550 DPS: 0.16	ROOM SOUND LEVEL	42	32	27	15	-	-	22		45	35	18	-	-	-	25	
VAV-08	PRIMARY SOUND	60	53	45	43	39	34	*		71	61	58	49	47	42	*	
DESV 14 - 14	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 2260 DPS: 0.19	ROOM SOUND LEVEL	42	34	25	17	-	-	22		42	31	17	-	-	-	22	
VAV-09	PRIMARY SOUND	59	52	45	43	38	34	*		70	61	57	49	47	42	*	
DESV 14 - 14	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	40
CFM: 1950 DPS: 0.14	ROOM SOUND LEVEL	41	33	25	17	-	-	20		41	31	16	-	-	-	20	
VAV-10	PRIMARY SOUND	61	52	48	41	37	31	*		75	66	60	51	47	44	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 1870 DPS: 0.23	ROOM SOUND LEVEL	43	33	28	15	-	-	23		46	36	19	-	-	-	27	
VAV-11	PRIMARY SOUND	61	52	47	41	37	30	*		75	66	60	51	47	44	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 1695 DPS: 0.19	ROOM SOUND LEVEL	43	33	27	15	-	-	23		46	36	19	-	-	-	27	
VAV-12	PRIMARY SOUND	61	52	48	41	37	31	*		75	66	60	51	47	44	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	35
CFM: 1865 DPS: 0.23	ROOM SOUND LEVEL	43	33	28	15	-	-	23		46	36	19	-	-	-	27	
VAV-13	PRIMARY SOUND	61	52	47	41	37	31	*		75	66	60	51	47	44	*	
DESV 12 - 12	TOTAL ATTENUATION PER: AHRI 885-98	18	19	20	26	31	36	*	35	29	30	41	51	52	39	*	45
CFM: 1800 DPS: 0.21	ROOM SOUND LEVEL	43	33	27	15	-	-	23		46	36	19	-	-	-	27	

NOTES:
1. SELECTIONS ARE BASED ON TITUS AS MANUFACTURER.
2. ALL PERFORMANCE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE 130-2008 AND AHRI 880-2011.
3. ALL NC LEVELS DETERMINED USING AHRI 885-2008 APPENDIX E.
4. ALL AIRFLOW, PRESSURE LOSSES AND HEATING PERFORMANCE VALUES HAVE BEEN CORRECTED FOR ALTITUDE.

REMOTE CONDENSING UNIT SCHEDULE

TAG	#	EQUIPMENT SERVED	MANUFACTURER	MODEL NUMBER	LOCATION	COOLING (96°F ODB/80°F IDB/67°F EWB) NOM. CAP. (MBH)	EER	IEER	REFRIG TYPE	REFRIG (LBS)	ELECTRICAL VOLTS	PH	MCA (A)	MOCP (A)	UNIT SIZE (L"xW"xH")	OPERATING WEIGHT (LBS.)	NOTES
CU	1	SF-1	DAIKIN	RCS025D	ROOF	260	11.0	13.6	R410A	16.6	460	3	47	60	99x58x56	2000	1-4
CU	2	SF-2	DAIKIN	RCS040D	ROOF	410	11.3	14.9	R410A	21.8	460	3	78	90	99x80x56	3600	1-4
CU	3	SF-3	DAIKIN	RCS12F150D	ROOF	140	12	22.6	R410A	24	460	3	27	35	39x74x45	700	1-4
CU	4A	SF-4A	DAIKIN	RCS042D	BACKSTAGE ROOF	524	10	0	R410A	82	460	3	90	100	80x99x73	2500	1-4
CU	4B	SF-4B	DAIKIN	RCS042D	BACKSTAGE ROOF	524	10	0	R410A	82	460	3	90	100	80x99x73	2500	1-4

NOTES
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECTS AS REQUIRED BY MANUFACTURER.
2. PROVIDE DISTRIBUTION CONTROLLER AND REFRIGERANT PIPING PER MANUFACTURER'S REQUIREMENTS.
3. PROVIDE VIBRATION ISOLATION AND SEISMIC RESTRAINT PER SPECIFICATIONS. SEE *EQUIPMENT - SOUND PERFORMANCE DATA* FOR ADDITIONAL INFORMATION.
4. FACTORY CONTROL FROM ASSOCIATED AIR HANDLING UNIT COOLING SIGNAL.

VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE-ELECTRIC REHEAT

TAG	#	MANUFACTURER	MODEL NUMBER	AIRFLOW CFM INLET SIZE (IN)	COOL MAX (CFM)	COOL MIN (CFM)	HEAT MIN (CFM)	HEAT MAX (CFM)	AIR P.D. (IN WG)	DCV	ELECTRIC REHEAT COIL VOLTS	PH	MAX (KW)	EAT (°F)	LAT (°F)	SINGLE POC (Y/N)	EMERG POWER (Y/N)	OPER. WT. (LBS)	NOTES
VAV	1	TITUS	DESV	8	600	180	300	365	0.25	CO2	460	3	4	50	92.1	Yes	No	60	1-13
VAV	2	TITUS	DESV	6	420	125	225	275	0.25	CO2	460	3	3	50	92.1	Yes	No	50	1-13
VAV	3	TITUS	DESV	9	840	250	415	500	0.25	CO2	460	3	5.5	50	92.1	Yes	No	65	1-13
VAV	4	TITUS	DESV	12	1475	450	750	905	0.25	-	460	3	10	50	92.1	Yes	No	82	1-13
VAV	5	TITUS	DESV	12	1550	165	750	905	0.25	CO2	460	3	10	50	92.1	Yes	No	82	1-13
VAV	6	TITUS	DESV	12	1550	465	750	905	0.25	CO2	460	3	10	50	92.1	Yes	No	82	1-13
VAV	7	TITUS	DESV	12	1550	465	750	905	0.25	CO2	460	3	10	50	92.1	Yes	No	82	1-13
VAV	8	TITUS	DESV	14	2260	680	975	1175	0.25	-	460	3	13	50	92.1	Yes	No	90	1-13
VAV	9	TITUS	DESV	14	1950	585	975	1175	0.25	-	460	3	13	50	92.1	Yes	No	90	1-13
VAV	10	TITUS	DESV	12	1870	560	900	1085	0.25	-	460	3	12	50	92.1	Yes	No	82	1-13
VAV	11	TITUS	DESV	12	1695	510	900	1085	0.25	-	460	3	12	50	92.1	Yes	No	82	1-13
VAV	12	TITUS	DESV	12	1865	560	900	1085	0.25	-	460	3	12	50	92.1	Yes	No	82	1-13
VAV	13	TITUS	DESV	12	1800	540	865	1040	0.25	-	460	3	11.5	50	92.1	Yes	No	82	1-13

NOTES:
1. PROVIDE PRESSURE INDEPENDENT TERMINAL UNIT.
2. MAXIMUM NC-30 DISCHARGE AND RADIATED SOUND LEVELS AT 0.5" STATIC PD. NOISE RATING IN ACCORDANCE WITH ARI STANDARD 880.
3. UNIT VENDOR TO VERIFY COIL SELECTIONS.
4. PROVIDE PROPORTIONAL MODULATING ELECTRIC COILS.
5. PROVIDE DOOR INTERLOCKING FUSED DISCONNECT SWITCH.
6. PROVIDE NEMA 1 ELECTRIC HEAT & CONTROLS ENCLOSURE. PROVIDE UL CLASS II 24VAC TRANSFORMER AS REQUIRED. COORDINATE WITH ELECTRICAL FOR LINE VOLTAGE POWER.
7. COORDINATE WITH BUILDING AUTOMATION SYSTEM.
8. TERMINAL CABINET SHALL INCLUDE 3/4" MINIMUM INTERNAL INSULATION LINING. TYPE SHALL BE FIBER-FREE OR FOIL FACED FIBERGLASS.
9. PROVIDE MINIMUM FIVE (5) FOOT LONG SOUND ATTENUATION DISCHARGE PLENUM ATTACHED TO TERMINAL UNIT. INSIDE CLEAR DIMENSION SHALL BE 2" HIGHER THAN TERMINAL HEIGHT AND 4" WIDER THAN TERMINAL WIDTH. INSULATION LINING TYPE SHALL BE MINIMUM 1" THICK OR R-4.2, WHICHEVER IS GREATER, WITH NON-FIBER, ANTI-MICROBIAL COATING. REFER TO DETAILS AND SPECIFICATIONS.
10. PROVIDE 48" CLEARANCE FOR ALL VAV WITH ELECTRIC REHEAT. CONTRACTOR SHALL MAINTAIN ALL REQUIRED CLEARANCES PER MANUFACTURER RECOMMENDATIONS AND ALL APPLICABLE CODES AND STANDARDS.
11. CONTRACTOR SHALL WORK WITH EXISTING CONDITIONS TO MAINTAIN ACCESSIBILITY. REQUIRED MODIFICATIONS TO ACCESS PANEL LOCATION SHALL BE DISCUSSED WITH ARCHITECT PRIOR TO RE-INSTALLATION.
12. PROVIDE VIBRATION ISOLATION AND SEISMIC RESTRAINT PER SPECIFICATIONS. INSTALL WITH NEOPRENE HANGERS.
13. REFER TO FLOOR PLANS FOR LOCATION OF THERMOSTAT AND / OR CO2 SENSORS. REFER TO SEQUENCE OF OPERATIONS FOR CONTROLS.
14. PERFORMANCE DATA BASED ON TITUS MODEL DESV. NAILOR MODEL 3000 TO BE ALTERNATE UNIT TO COMPARE ACOUSTICAL PERFORMANCE.

ELECTRIC UNIT HEATER SCHEDULE

TAG	#	MANUFACTURER	MODEL NUMBER	AREA SERVED	LOCATION	TYPE	AIR FLOW (CFM)	TEMP RISE (°F)	ELECTRICAL FAN HP	HEAT CAP (KW)	VOLTS	PH	MCA (A)	EMERG POWER (Y/N)	PREFILTER	UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
EUH	1	KING	CK4810-3	ENTRY	ENTRY	PLENUM RATED UNIT HEATER	600	32	1/4	10	460	3	12	No	14"X14" MERV 8	31"X16"X20"	90	1,2,3,4
EUH	2	KING	CK4810-3	ENTRY	ENTRY	PLENUM RATED UNIT HEATER	600	32	1/4	10	460	3	12	No	14"X14" MERV 8	31"X16"X20"	90	1,2,3,4

NOTES
1. PROVIDE DISCONNECT.
2. MOUNT PER MANUFACTURER'S REQUIREMENTS AND MAINTAIN REQUIRED CLEARANCES.
3. UNIT SHALL BE DUCTED AS SHOWN ON DRAWINGS, WRAP DUCT AND EUH WITH INSULATION.
4. PROVIDE - SSR25 - SOLID STATE RELAY (25 AMP MAXIMUM) WITH 0-10V SCR.
5. PROVIDE MODULATING THERMOSTAT -C1025 FOR SSR CONTROL.
6. CONTROLS CONTRACTOR SHALL PROVIDE CONTROL POINT FOR INTEGRATING INTO EXISTING BMS.
7. PROVIDE - SSR25 - SOLID STATE RELAY (25 AMP MAXIMUM) WITH 0-10V SCR.

DIFFUSER AND GRILLE SCHEDULE

TAG	MANUFACTURER	MODEL	DESCRIPTION	FACE TYPE	FACE SIZE	COLOR	MATERIAL	NOTES
RA	TITUS	PAR	SQUARE CEILING RETURN	1/2" x 1/2" x 1/2" EGGCRATE	24"X24"	WHITE	STEEL	2,3,4,5,6,7
RB	TITUS	PAR	SQUARE CEILING RETURN	1/2" x 1/2" x 1/2" EGGCRATE	12"x12"	WHITE	STEEL	,2,3,4,5,6,7
RC	TITUS	FL	LINEAR SLOT RETURN	SLOT - 1.5 INCH WIDTH	SEE PLANS	WHITE	ALUMINUM	,2,3,4,5,6,8,9
RD	TITUS	350	AEROBLADE GRILLE EXHAUST	3/4" SINGLE SPACING, 45° DEFLECTION	SEE PLANS	WHITE	ALUMINUM	1,2,3,4,5,6,7
SA	TITUS	OMNI	SQUARE CEILING SUPPLY	SUPPLY PLAQUE	24"X24"	WHITE	STEEL	1,2,3,4,5,6,7
SC	TITUS	FL	LINEAR SLOT SUPPLY	SLOT - 1.5 INCH WIDTH	SEE PLANS	WHITE	ALUMINUM	1,2,3,4,5,6,8,9

NOTES:
1. ANY GRILLE/DIFFUSER MOUNTED DIRECTLY ON EXPOSED DUCT SHALL MATCH COLOR OF DUCT (IF PAINTED) OR SHALL HAVE CLEAR ANODIZED FINISH (IF DUCT IS UNPAINTED).
2. MAXIMUM TOTAL PRESSURE DROP SHALL NOT EXCEED 0.15" WG WITH DUCT TRANSITION.
3. MAXIMUM NC LEVEL SHALL BE 25.
4. ALL VISIBLE SURFACES AND DUCTWORK BEHIND FACE SHALL BE PAINTED FLAT BLACK.
5. NECK SIZE AND CFM SHOWN ARE ON PLANS (EXAMPLE: SA12x12-400 REFERS TO TAG "SA" WITH 12x12 NECK AND 400 CFM).
6. PROVIDE RECTANGULAR/SQUARE TO ROUND TRANSITION AS REQUIRED AND SIZED FOR MAXIMUM 0.01" WG TOTAL PRESSURE DROP.
7. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLANS FOR BORDER TYPES. BOD IS SUPPLY CEILING DIFFUSER WITH BORDER TYPE 2 OR 4.
8. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLANS FOR BORDER TYPES. BOD IS SUPPLY LINEAR DIFFUSER WITH BORDER TYPE 11.
9. PLENUM CONNECTION SIZE, SLOT LENGTH, AND CFM SHOWN ON PLANS (EXAMPLE: SL8-120-2000 REFERS TO TAG "SL" WITH 8" ROUND CONNECTION, 120" CONTINUOUS SLOT LENGTH AND 2000 CFM).
10. PROVIDE MANUFACTURER'S INSULATED PLENUM.

bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area
EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER
81596PE
Steve Williams
OREGON
JANUARY 8, 2008
STEVEN A. NOLLKAMPER

SCHEDULES

PERMIT SET

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GENERAL NOTES

1. THESE GENERAL NOTES APPLY TO ALL SHEETS.
2. CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. DO NOT SCALE FOR MATERIAL QUANTITIES. SCALING SHOULD BE REFERENCED TO ARCHITECTURAL PLANS ONLY.
3. COORDINATE CONSTRUCTION OF MECHANICAL WORK WITH OTHER DISCIPLINES AND AS SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
4. CONTRACTOR SHALL VISIT SITE AND VERIFY EXISTING CONDITIONS AND CONNECTIONS TO EXISTING WORK PRIOR TO BIDDING AND CONSTRUCTION. THE CONTRACTOR SHALL PAY FOR AND REPAIR DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
5. CONTRACTOR SHALL OBTAIN AND PAY FOR REQUIRED FEES, PERMITS AND INSPECTIONS. OBTAIN ALL FIELD APPROVALS ON WORK FROM REGULATING AGENCIES WHERE REQUIRED.
6. DURING ENTIRE CONSTRUCTION PERIOD MAINTAIN ADEQUATE FIRE EXTINGUISHERS READY FOR USE IN CASE OF FIRE.
7. COORDINATE WORK WITH OTHER TRADES AND AVOID IMPACTING ARCHITECTURAL AND STRUCTURAL MEMBERS. NO WORK SUCH AS PIPE, DUCTWORK, ETC., SHALL BE IN CONTACT WITH ANY EQUIPMENT OR BUILDING MEMBERS.
8. COORDINATE CUTTING AND PATCHING WITH GENERAL CONTRACTOR AND OTHER DISCIPLINES. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING RELATED TO THEIR WORK.
9. DRAWINGS THAT INDICATE EXISTING ITEMS FOR RELOCATION (ER) SHALL BE REMOVED, STORED, CLEANED, PROTECTED FROM DAMAGE AND INSTALLED IN NEW LOCATIONS AS INDICATED ON DRAWINGS.
10. OBTAIN WRITTEN PERMISSION OF STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY CUTTING OR PATCHING OF STRUCTURAL SYSTEMS. DO NOT CUT ROOF FRAMING.
11. ATTACHMENTS TO THE BUILDING STRUCTURE SHALL BE COORDINATED WITH THE STRUCTURAL DESIGN. BRACING AND MOUNTING OF PIPES AND DUCTS SHALL MEET THE MINIMUM REQUIREMENTS OF THE MOST RECENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. CONTRACTOR SHALL MAINTAIN ONE COPY OF THIS MANUAL ON SITE AT ALL TIMES FOR REVIEW AND ACCESS BY INSPECTORS AND OWNER'S REPRESENTATIVES.
12. SEISMIC RESTRAINTS OF PIPES AND DUCTS SHALL MEET THE MINIMUM REQUIREMENTS OF THE MOST RECENT SMACNA SEISMIC RESTRAINT MANUAL. CONTRACTOR SHALL MAINTAIN ONE COPY ON SITE AT ALL TIMES FOR REVIEW AND ACCESS BY INSPECTORS AND OWNER'S REPRESENTATIVES.
13. THESE PLANS AND ACCOMPANYING SPECIFICATIONS HAVE BEEN DESIGNED TO SHOW SUBSTANTIAL COMPLIANCE WITH THE APPLICABLE BUILDING ENERGY EFFICIENCY CODE. EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE BUILDING ENERGY EFFICIENCY CODE.
14. SUPPLY AND RETURN AIR DUCTWORK SHALL BE INSULATED WITH NOT LESS THAN THE AMOUNT OF INSULATION INDICATED IN ACCORDANCE WITH THE APPLICABLE MECHANICAL CODE AND BUILDING ENERGY EFFICIENCY CODE. DUCTWORK MOUNTED EXTERIOR TO THE BUILDING ENVELOPE SHALL BE SANDWICHED INSULATION WITH DOUBLE WALL SHEETMETAL CONSTRUCTION.
15. ALL NEW DUCTWORK SHALL BE ACOUSTICALLY LINED (MIN. 2-INCH) PER SPECIFICATIONS.
16. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
17. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.
18. DUCT HANGERS AND SUPPORTS SHALL COMPLY WITH THE MECHANICAL CODE AND THE "SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE".
19. SUPPLY, RETURN AND EXHAUST AIR DUCTWORK SHALL BE GALVANIZED SHEET METAL IN ACCORDANCE WITH MECHANICAL CODE, SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND ASHRAE STANDARDS.
20. DIMENSIONS AND SHAPE OF THE DUCT MAY BE ALTERED, AS LONG AS THE SAME AIR VELOCITY AND FLOW RATE ARE MAINTAINED, TO AVOID INTERFERENCES AND MAINTAIN ADEQUATE CLEARANCES.
21. DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
22. SEAL DUCT JOINTS, INCLUDING LONGITUDINAL JOINTS, WITH WATER BASED SEALANT. MAXIMUM ALLOWABLE DUCTWORK LEAKAGE SHALL NOT EXCEED 5% AND AS DEFINED ELSEWHERE IN DOCUMENTS.
23. IDENTIFY MECHANICAL EQUIPMENT WITH NAMEPLATES PERMANENTLY ENGRAVED WITH 1/2 INCH HIGH WHITE LETTERS ON A BLACK BACKGROUND. IDENTIFY EQUIPMENT WITH SYMBOLS SHOWN ON THE PLANS AND AREA SERVED DESCRIPTION.
24. INSTALL VOLUME DAMPERS WHERE SHOWN AND AS REQUIRED FOR PROPER BALANCING OF EACH DIFFUSER/GRILLE/REGISTER, INCLUDING DEVICES WITH OPPOSED BLADE DAMPERS. VOLUME DAMPERS SHALL BE MOUNTED IMMEDIATELY DOWNSTREAM OF BRANCH CONNECTIONS. PROVIDE EXTENDED REGULATORS, WITH CONCEALED COVER PLATES, TO OPERATE DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS.
25. CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS.
26. PROVIDE FLASHING AND COUNTERFLASHING FOR ALL PENETRATIONS THROUGH WALLS OR ROOF TO MAKE WATERPROOF INSTALLATION.
27. OUTSIDE AIR FOR A HEATING OR COOLING SYSTEM SHALL NOT BE TAKEN FROM CLOSER THAN TEN (10) FEET FROM AN APPLIANCE VENT OUTLET, VENT OPENING OF A PLUMBING SYSTEM, OR THE DISCHARGE OUTLET OF EXHAUST FAN, UNLESS THE OUTLET IS THREE (3) FEET ABOVE THE OUTSIDE AIR INLET.
28. SUPPORT PIPING SO THAT IT IS FIRMLY HELD IN PLACE BY APPROVED IRON HANGERS AND SUPPORTS IN ACCORDANCE WITH RECOMMENDATIONS OF AMERICAN PIPE FITTERS ASSOCIATION AND PIPE HANGER INSTITUTE.
29. MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES, WHERE REQUIRED, SHALL BE PROVIDED AND MOUNTED BY THE MECHANICAL INSTALLER. CONDUIT AND WIRING SHALL BE PROVIDED BY ELECTRICAL INSTALLER.
30. PROVIDE MATERIALS AND EQUIPMENT AND PERFORM LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE HVAC SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
31. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
32. FIELD ERECTED AND FACTORY ASSEMBLED AIR HANDLING UNIT COILS SHALL BE ARRANGED FOR REMOVAL FROM THE UPSTREAM SIDE WITHOUT DISMANTLING SUPPORTS. PROVIDE GALVANIZED STRUCTURAL STEEL SUPPORTS FOR ALL COILS (EXCEPT LOWEST COIL) IN BANKS OVER TWO COILS HIGH TO PERMIT INDEPENDENT REMOVAL OF ANY COIL.
33. AIR HANDLING UNITS SHALL OPERATE WITHOUT MOISTURE CARRYOVER.
34. LOCATE MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS AND VALVING.
35. PROVIDE FLEXIBLE CONNECTIONS IN INTERIOR DUCTWORK SYSTEMS WHERE NEW DUCT CONNECTS TO HVAC EQUIPMENT. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO EQUIPMENT UNLESS OTHERWISE INDICATED.
36. INDIVIDUAL RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED FIVE (5) FEET.
37. EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED, AND REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
38. EQUIPMENT SHALL BE ATTACHED AND ANCHORED PER THE APPLICABLE BUILDING CODE, MANUFACTURER'S INSTRUCTIONS AND STRUCTURAL DESIGN.
39. PROVIDE VIBRATION ISOLATION DEVICES FOR MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
40. DUCTWORK SHALL BE COORDINATED WITH TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
41. PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL FANS, SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, HUMIDIFIERS, COILS, AND OTHER ITEMS LOCATED IN THE DUCTWORK WHICH REQUIRE OPERATION, ADJUSTMENT AND MAINTENANCE.

41\. DUCT MOUNTED PHOTOELECTRIC SMOKE DETECTORS SHALL BE INSTALLED FOR EACH HEATING OR COOLING SYSTEM SUPPLYING AIR IN EXCESS OF 2000 CFM AND IN SYSTEMS SERVING MORE THAN ONE OCCUPANCY TYPE. DETECTOR SHALL BE PROVIDED WITH METAL SAMPLING TUBE AND BE MOUNTED IN THE SUPPLY AIR DUCTWORK. DETECTOR SHALL SHUT DOWN THE AIR-MOVING EQUIPMENT WHEN SMOKE IS DETECTED. PROVIDE REMOTE TEST AND RESET STATION FOR MOUNTING AT THE CEILING OR WALL IN THE VICINITY OF THE SMOKE DETECTOR.

42. SMOKE DETECTORS SHALL BE WIRED BY THE ELECTRICAL INSTALLER. THE MECHANICAL INSTALLER SHALL BE RESPONSIBLE FOR MOUNTING THE SMOKE DETECTOR IN DUCTWORK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
43. THE EXACT LOCATION AND SIZE OF EQUIPMENT PADS, ROOF OPENINGS, WALL OPENINGS, WALL/FLOOR PENETRATIONS, AND MOUNTING FRAMES SHALL BE COORDINATED IN THE FIELD WITH FINAL EQUIPMENT FURNISHED AND BUILDING CONSTRUCTION.
44. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
45. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR RATED ACCURACY.
46. UNLESS OTHERWISE SHOWN, LOCATE ROOM TEMPERATURE SENSORS AND THERMOSTATS SUCH THAT OPERABLE PARTS ARE NO HIGHER THAN 48" ABOVE FINISHED FLOOR. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY ROOMS WHERE THIS CANNOT BE MAINTAINED OR WHERE THERE IS A CONCERN ABOUT LOCATION. DO NOT MOUNT TEMPERATURE SENSORS ABOVE LIGHT SWITCHES.
47. COORDINATE CONTROLS AND SEQUENCES OF OPERATION WITH THE BUILDING AUTOMATION SYSTEM (BAS). PROVIDE ALL DEVICES, CONTROLLERS, SENSORS, CONDUIT, WIRING AND LABOR TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM TO MEET THE OWNER'S PROJECT REQUIREMENTS AND THE DESIGN INDICATED ON THESE DRAWINGS AND SPECIFICATIONS.
48. CONTROL CONDUIT AND WIRING SHALL COMPLY WITH THE ELECTRICAL CODE AND THE SPECIFICATIONS.
49. COORDINATE EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
50. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
51. THE LOCATIONS OF ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. DO NOT SCALE DRAWINGS.
52. MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
53. DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
54. ROOF MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR. EXISTING SALVAGED EQUIPMENT SHALL BE PROVIDED WITH NEW ROOF CURBS SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR.
55. LOCATIONS AND SIZES OF FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
56. PENETRATIONS THROUGH FIRE AND SMOKE RATED WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE AND SMOKE STOPPED WITH A UL APPROVED SEALANT SYSTEM.
57. AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT AND ROOFTOP UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO NEAREST DRAIN. SEE DETAILS SHOWN ON THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR DEPTH OF AIR CONDITIONING CONDENSATE TRAP TO EXCEED UNIT STATIC PRESSURE. CONDENSATE DRAIN LINES SHALL NOT BE LESS THAN 3/4" INTERNAL DIAMETER AND SHALL NOT DECREASE IN SIZE FROM THE OUTLET OF THE DRAIN PAN CONNECTION TO THE PLACE OF CONDENSATE DISPOSAL. EQUIPMENT MANUFACTURER SHALL PROVIDE OUTLET SIZE TO ALIGN WITH CONDENSATE DRAIN SIZING TABLES IN THE MECHANICAL AND PLUMBING CODES. UNIT OUTLET SIZE SHALL BE 3/4" FOR EQUIPMENT CAPACITY TO 20 TON OF REFRIGERATION AND 1" FOR EQUIPMENT CAPACITY OVER 20 TONS TO 40 TONS OF REFRIGERATION.
58. SIZING OF THE GAS FIRED CATEGORY 1 APPLIANCE VENTING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MECHANICAL CODE AS APPLICABLE TO THE TYPE INSTALLATION.
59. EQUIPMENT AND APPLIANCES SHALL BE ACCESSIBLE FOR SERVICE, INSPECTION, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION. SUFFICIENT CLEARANCE SHALL BE MAINTAINED TO PERMIT CLEANING, REPLACEMENT OF FILTERS, BLOWERS, MOTORS, CONTROLS AND LUBRICATION OF MOVING PARTS. MINIMUM OF 48 INCHES OF CLEARANCE IN DEPTH WIDTH AND HEIGHT SHALL BE PROVIDED TO SERVICE THE APPLIANCE OR EQUIPMENT.
60. TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
61. BALANCE AIR FLOW AT AIR INLETS AND OUTLETS TO AIR QUANTITIES SHOWN OR AS CORRECTED BY MECHANICAL ENGINEER AFTER PRE-BALANCE REPORT IS SUBMITTED. INSTALL TEST PLUGS WHERE NECESSARY. PROVIDE TYPED FINAL BALANCE REPORTS. BALANCING CONTRACTOR SHALL BE INDEPENDENT OF THE INSTALLING CONTRACTORS AND CERTIFIED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR ASSOCIATED AIR BALANCE COUNCIL (AABC) WITH AT LEAST THREE YEARS OF EXPERIENCE.
62. EXPOSED PIPE, PIPE SUPPORTS, DUCTWORK, UNFINISHED EQUIPMENT AND DUCT SUPPORTS SHALL MATCH ADJACENT FINISHES AS REQUIRED BY PAINTING SPECIFICATION AND ARCHITECTURAL DRAWINGS.
63. RESTORE DAMAGE RESULTING FROM WORK AND LEAVE PREMISES IN CLEAN CONDITION WHEN FINISHED.
64. GUARANTEE WORK AND MATERIALS FOR ONE YEAR (MINIMUM) FROM DATE OF CERTIFICATE OF OCCUPANCY.
65. AT COMPLETION OF CONSTRUCTION PROVIDE AS-BUILT DRAWINGS AND COPIES OF BOUND OPERATIONS AND MAINTENANCE MANUALS.
66. A COPY OF THE MANUFACTURERS INSTALLATION INSTRUCTIONS SHALL BE PROVIDED AT THE LOCATION OF EACH PIECE OF EQUIPMENT.

bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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875 SW 26TH STREET
CORVALLIS, OR 97331

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ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER
81596PE
OREGON
JANUARY 8, 2009
STEVEN A. NOLLKAMPER
DocuSigned by: Steve Nollkamper
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GENERAL NOTES

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OUTDOOR AIR CALCULATION - MULTIPLE-ZONE RECIRCULATING SYSTEM METHOD

SYSTEM: SF-1 — BASED ON ASHRAE 2007

ROOM #	ZONE	DESCRIPTION	APPLICATION	AREA (SF)	TABLE 6-1 OUTDOOR AIR (CFM/SF)	TABLE 6-1 OCCUPANCY (P/1000 SF)	CALCULATED OCCUPANTS	OVERRIDE # OCCUPANTS/ # FIXTURES	NUMBER OF # OCCUPANTS / FIXTURES	OCCUPANTS	OUTDOOR AIR REQ. (CFM/PERSON)	EXHAUST RATE REQ. (CFM/SF)	(Rp X Pz)	(Ra X Az)	BREATHING ZONE OUTDOOR AIRFLOW (CFM) Vbz	TABLE 6-2 ZONE AIR DIST. EFFECTIVENESS Ez	ZONE OUTDOOR AIR FLOW (CFM) Voz	ZONE PRIMARY AIR FLOW (MIN. CFM) Vpz	ZONE PRIMARY OUTDOOR AIR FRACTION Zp	EXHAUST REQUIRED (CFM)	OSA/EXH AIRFLOW PROVIDED (CFM)	AIR CLASS
CONFERENCE 101	VAV-1		CONFERENCE/ MEETING	380	0.06	50	19.0	25	25.0	25.0	5.0	-	125.0	22.8	148	1.0	148	600	0.247	-		1
SHARED 102	VAV-2		OFFICE SPACE	380	0.06	5	1.9	4	4.0	4.0	5.0	-	20.0	22.8	43	1.0	43	420	0.102	-		1
MEETING RM 103	VAV-3		CONFERENCE/ MEETING	803	0.06	50	40.2	49	49.0	49.0	5.0	-	245.0	48.2	293	1.0	293	840	0.349	-		1
PANTRY 113	VAV-4		OCCUPIABLE STOR. FOR DRY GOODS	268	0.06	2	0.5	1	1.0	1.0	5.0	-	5.0	16.1	21	1.0	21	100	0.210	-		
CORRIDOR 110	VAV-4		CORRIDORS	594	0.06	0	0.0	0	0.0	0.0	0.0	-	0.0	35.6	36	1.0	36	100	0.360	-		
JANITOR 114	VAV-4		(EXH) JANITOR, TRASH, RECYCLE ROOMS	63	-	-	-	0	0.0	0.0	-	1.0	0.0	0.0	0	1.0	0	25	-	63		
STORAGE 115	VAV-4		OCCUPIABLE STOR. FOR DRY GOODS	70	0.06	2	0.1	1	1.0	1.0	5.0	-	5.0	4.2	9	1.0	9	25	0.360	-		
STORAGE 117	VAV-4		OCCUPIABLE STOR. FOR DRY GOODS	415	0.06	2	0.8	1	1.0	1.0	5.0	-	5.0	24.9	30	1.0	30	75	0.400	-		
WOMEN'S RR	VAV-4		(EXH) TOILETS - PUBLIC	177	-	-	-	0	0.0	0.0	-	50/70 (CFM/UNIT)	0.0	0.0	0	1.0	0	50	-	#N/A		
MEN'S RR	VAV-4		(EXH) TOILETS - PUBLIC	172	-	-	-	0	0.0	0.0	-	50/70 (CFM/UNIT)	0.0	0.0	0	1.0	0	50	-	#N/A		
CONFERENCE 104	VAV-5		CONFERENCE/ MEETING	1069	0.06	50	53.5	72	72.0	72.0	5.0	-	360.0	64.1	424	1.0	424	1500	0.283	-		1
AUDIO/VISUAL 107	VAV-5		OCCUPIABLE STOR. FOR DRY GOODS	45	0.06	2	0.1	0	0.0	0.0	5.0	-	0.0	2.7	3	1.0	3	50	0.060	-		2
CONFERENCE 105	VAV-6		CONFERENCE/ MEETING	1069	0.06	50	53.5	72	72.0	72.0	5.0	-	360.0	64.1	424	1.0	424	1500	0.283	-		1
AUDIO/VISUAL 108	VAV-6		OCCUPIABLE STOR. FOR DRY GOODS	45	0.06	2	0.1	0	0.0	0.0	5.0	-	0.0	2.7	3	1.0	3	50	0.060	-		2
CONFERENCE 106	VAV-7		CONFERENCE/ MEETING	1069	0.06	50	53.5	72	72.0	72.0	5.0	-	360.0	64.1	424	1.0	424	1500	0.283	-		1
AUDIO/VISUAL 109	VAV-7		OCCUPIABLE STOR. FOR DRY GOODS	45	0.06	2	0.1	0	0.0	0.0	5.0	-	0.0	2.7	3	1.0	3	50	0.060	-		2
				6,664				Total all zones Pz:	**297**				**1,485**	**375**				Max(Zp):	**0.400**			

SYSTEM POPULATION (PEOPLE), Ps: 222.75
OCCUPANT DIVERSITY, D = (Ps) / Total all zones (Pz): **0.75**

UNCORRECTED OUTDOOR AIR INTAKE (CFM), Vou: **1488.9**
SYSTEM VENTILATION EFFICIENCY, Ev: **0.75**
OUTDOOR AIR INTAKE FLOW (CFM) , Vot: **1985**

APPENDIX A OVERRIDE FOR Ev:
LEED EQc2 - 30% INCREASED VENTILATION: NO

OUTDOOR AIR CALCULATION - MULTIPLE-ZONE RECIRCULATING SYSTEM METHOD

SYSTEM: SF-2 — BASED ON ASHRAE 2007

ROOM #	ZONE	DESCRIPTION	APPLICATION	AREA (SF)	TABLE 6-1 OUTDOOR AIR (CFM/SF)	TABLE 6-1 OCCUPANCY (P/1000 SF)	CALCULATED OCCUPANTS	OVERRIDE # OCCUPANTS/ # FIXTURES	NUMBER OF # OCCUPANTS / FIXTURES	OUTDOOR AIR REQ. (CFM/PERSON)	EXHAUST RATE REQ. (CFM/SF)	BREATHING ZONE OUTDOOR AIRFLOW (CFM) Vbz	TABLE 6-2 ZONE AIR DIST. EFFECTIVENESS Ez	ZONE OUTDOOR AIR FLOW (CFM) Voz	ZONE PRMARY AIR FLOW (MIN. CFM) Vpz	ZONE PRIMARY OUTDOOR AIR FRACTION Zp	EXHAUST REQUIRED (CFM)	OSA/EXH AIRFLOW PROVIDED (CFM)	AIR CLASS
CORRIDOR	VAV-8		CORRIDORS	1350	0.06	0	0.0		0.0	0.0	-	81	1.0	81	680	0.119	-		1
CORRIDOR	VAV-9		CORRIDORS	1950	0.06	0	0.0		0.0	0.0	-	117	1.0	117	585	0.200	-		1
MAIN LOBBY	VAV-10		MUSEUMS/ GALLERIES	1325	0.06	40	53.0		53.0	7.5	-	477	1.0	477	700	0.681	-		1
MAIN LOBBY	VAV-11		MUSEUMS/ GALLERIES	1325	0.06	40	53.0		53.0	7.5	-	477	1.0	477	700	0.681	-		1
MAIN LOBBY	VAV-12		MUSEUMS/ GALLERIES	1325	0.06	40	53.0		53.0	7.5	-	477	1.0	477	700	0.681	-		1
MAIN LOBBY	VAV-13		MUSEUMS/ GALLERIES	1275	0.06	40	51.0		51.0	7.5	-	459	1.0	459	780	0.588	-		1
COATS 138	VAV-13		OCCUPIABLE STOR. FOR DRY GOODS	115	0.06	2	0.2		0.2	5.0	-	8	1.0	8	30	0.267	-		2
				8,665				Total all zones Pz:	**210**								Max(Zp):	**0.681**	

SYSTEM POPULATION (PEOPLE), Ps: 126
OCCUPANT DIVERSITY, D = (Ps) / Total all zones (Pz): **0.60**

UNCORRECTED OUTDOOR AIR INTAKE (CFM), Vou: **1465.6**
SYSTEM VENTILATION EFFICIENCY, Ev: **Use Appendix A**
OUTDOOR AIR INTAKE FLOW (CFM) , Vot: **3377**

APPENDIX A OVERRIDE FOR Ev: 0.434
LEED EQc2 - 30% INCREASED VENTILATION: NO

OUTDOOR AIR CALCULATION - SINGLE ZONE OR 100% OSA SCHEDULE

SYSTEM: SF-3 — BASED ON ASHRAE 2007

ROOM #	ZONE	DESCRIPTION	APPLICATION	AREA (SF)	TABLE 6-1 OUTDOOR AIR (CFM/SF)	TABLE 6-1 OCCUPANCY (P/1000 SF)	CALCULATED OCCUPANTS	OVERRIDE # OCCUPANTS/ # FIXTURES	OCCUPANTS	OUTDOOR AIR REQ. (CFM/PERSON)	EXHAUST RATE REQ. (CFM/SF)	BREATHING ZONE OUTDOOR AIRFLOW (CFM) Vbz	TABLE 6-2 ZONE AIR DIST. EFFECTIVENESS Ez	ZONE OUTDOOR AIR FLOW (CFM) Voz	EXHAUST REQUIRED (CFM)	OSA/EXH AIRFLOW PROVIDED (CFM)
	SF-3		LECTURE CLASSROOM	2731	0.06	65	177.5	150	150.0	7.5	-	1676	0.8	2094	-	
				2,731				Total all zones Pz:								**0**

LEED EQc2 - 30% Increased Ventilation ?: YES
OUTDOOR AIR INTAKE FLOW (CFM) , Vot **2094**

OUTDOOR AIR CALCULATION - SINGLE ZONE OR 100% OSA SCHEDULE

SYSTEM: SF-4A&B — BASED ON ASHRAE 2007

ROOM #	ZONE	DESCRIPTION	APPLICATION	AREA (SF)	TABLE 6-1 OUTDOOR AIR (CFM/SF)	TABLE 6-1 OCCUPANCY (P/1000 SF)	CALCULATED OCCUPANTS	OVERRIDE # OCCUPANTS/ # FIXTURES	OCCUPANTS	OUTDOOR AIR REQ. (CFM/PERSON)	EXHAUST RATE REQ. (CFM/SF)	BREATHING ZONE OUTDOOR AIRFLOW (CFM) Vbz	TABLE 6-2 ZONE AIR DIST. EFFECTIVENESS Ez	ZONE OUTDOOR AIR FLOW (CFM) Voz	EXHAUST REQUIRED (CFM)	OSA/EXH AIRFLOW PROVIDED (CFM)
	SF-4A & B		MUSIC/ THEATER/ DANCE	12386	0.06	35	433.5		433.5	10.0	-	5078	1.0	5078	-	
				12,386				Total all zones Pz:								**0**

LEED EQc2 - 30% Increased Ventilation ?: NO
OUTDOOR AIR INTAKE FLOW (CFM) , Vot **5078**

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bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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CORVALLIS, OR 97331

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ISSUE DATE: 02/21/2022

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EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER — 81596PE — Steve Williams — OREGON — JANUARY 8, 2013 — STEVEN A. NOLLKAMPER

VENT SCHEDULES

M0.03

GENERAL NOTES

A. THESE GENERAL NOTES APPLY TO ALL SHEETS.

B. CONTRACTOR SHALL REMOVE ACCESS PANELS AND REINSTALL AS REQUIRED FOR THE REPLACEMENT OF MECHANICAL EQUIPMENT. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK AND CONTACT ENGINEER AND ARCHITECT OF ANY DISCREPANCIES.

C. CONTRACTOR SHALL REMOVE ALL EXISTING PNEUMATIC CONTROLS.

D. CONTRACTOR SHALL REMOVE ALL HYDRONIC PIPING ASSOCIATED WITH EXISTING SYSTEM.

E. PROVIDE PRECONSTRUCTION TEST AND BALANCE READINGS (MIN/MAX AIRFLOWS) OF ALL AIR SYSTEMS. THESE SYSTEMS SHALL BE RETURNED TO THESE INITIAL VALUES UPON THE COMPLETION OF THE AHU AND VAV REPLACEMENT.

KEYED NOTES

1 EXISTING DUCTWORK TO REMAIN, TYPICAL.

2 EXISTING VAV TERMINAL UNIT TO BE DEMOLISHED. REMOVE EXISTING PNEUMATIC CONTROLS AND EXISTING HYDRONIC PIPING COMPLETE.

3 BOILER B-1 SHALL BE DEMOLISHED. REMOVE PIPING AND ASSOCIATED HANGERS, VALVES COMPLETE.

4 DEMOLISH AND REMOVE EXISTING VAV TERMINAL UNIT PNEUMATIC THERMOSTATS. PATCH EXISTING HOLE IF THERMOSTAT IS RELOCATED, REFER TO M2.01.

5 EXISTING CABINET UNIT HEATER, ASSOCIATED PNEUMATIC CONTROLS AND HYDRONIC PIPING TO BE DEMOLISHED COMPLETE. REMOVE DUCTWORK AS SHOWN FOR INSTALLATION OF NEW DUCTED ELECTRIC UNIT HEATER.

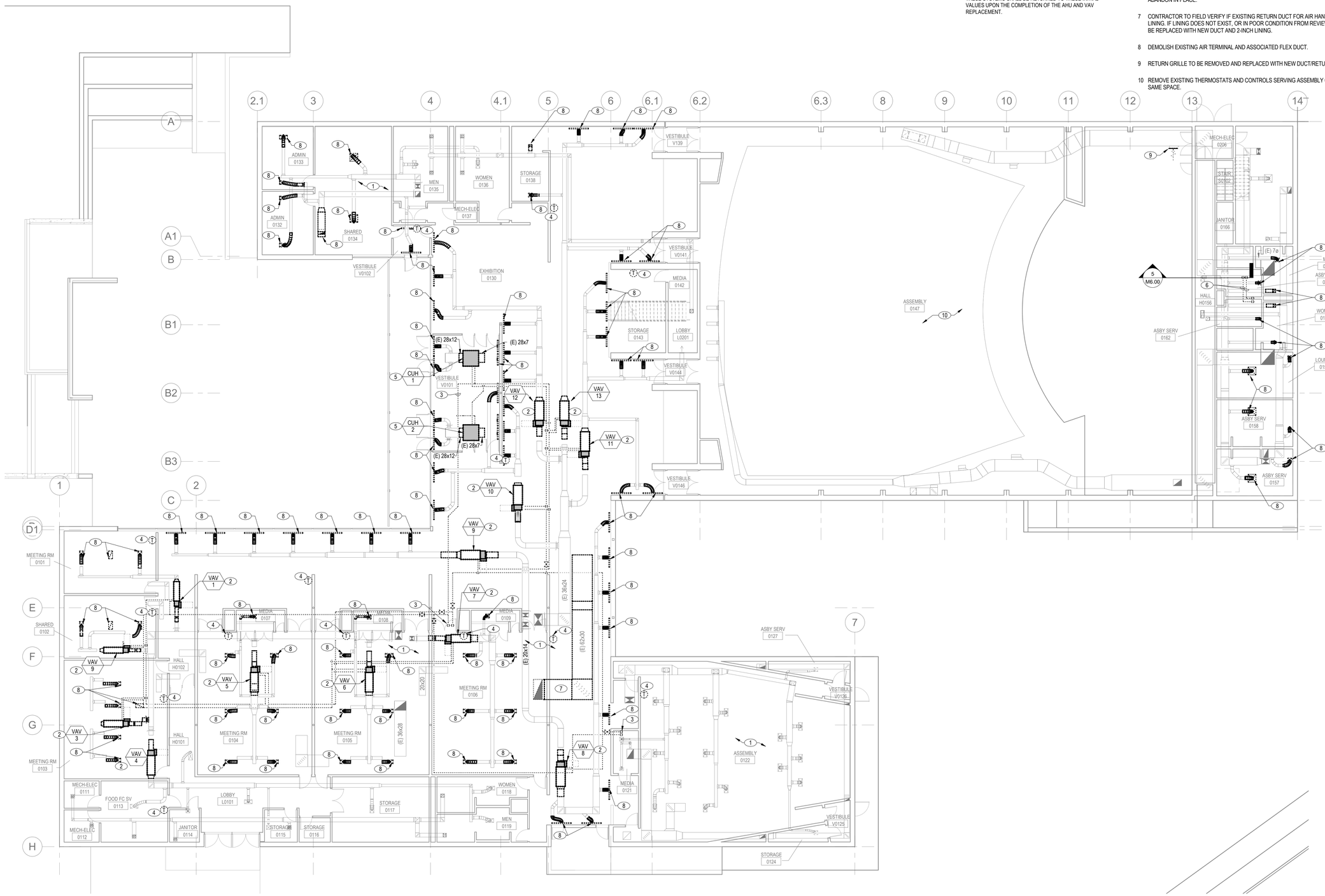
6 REMOVE INTERIOR HYDRONIC PIPING SERVING BOILER B-2. ALTERNATIVE, CAP BOILER PIPING AT ROOF AND ABANDON IN PLACE.

7 CONTRACTOR TO FIELD VERIFY IF EXISTING RETURN DUCT FOR AIR HANDLING UNIT SF-2 HAS INTERNAL DUCT LINING. IF LINING DOES NOT EXIST, OR IN POOR CONDITION FROM REVIEW BY ACOUSTICAL ENGINEER, IT IS TO BE REPLACED WITH NEW DUCT AND 2-INCH LINING.

8 DEMOLISH EXISTING AIR TERMINAL AND ASSOCIATED FLEX DUCT.

9 RETURN GRILLE TO BE REMOVED AND REPLACED WITH NEW DUCT/RETURN. SEE M2.01 FOR DETAILS.

10 REMOVE EXISTING THERMOSTATS AND CONTROLS SERVING ASSEMBLY 0147. NEW CONTROLS SHALL OCCUPY SAME SPACE.



1 MAIN LEVEL - FLOOR PLAN - HVAC DEMO

SCALE: 1" = 10'-0"

1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
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T (503) 227 5280

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T (503) 772 1114

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REGISTERED PROFESSIONAL ENGINEER
81596PE
OREGON
JANUARY 8, 2008
STEVEN A. NOLLKAMPER

DEMO - MAIN LEVEL PLAN - HVAC

MD1.01

GENERAL NOTES

A. CONTRACTOR SHALL REMOVE EXISTING ROOF CURBS COMPLETE, WITH INTENT TO USE ROOF PENETRATIONS AND FOOTPRINT FOR NEW EQUIPMENT AND CURBS.

B. EXISTING TO REMAIN ROOF TOP EQUIPMENT SHALL BE REMOVED AND STORED IN A CLEAN DRY LOCATION DURING ROOF REPLACEMENT.

C. ALL DUCT ROOF PENETRATIONS AND ROOF TOP OPENINGS SHALL BE CAPPED DURING ROOF REPLACEMENT TO PREVENT DEBRIS ENTERING.

KEYED NOTES (#)

1 EXISTING BOILER TO BE DEMOLISHED. REMOVE ASSOCIATED HOUSEKEEPING PAD, GAS PIPING, HYDRONIC PIPING AND ELECTRICAL CONTROLS.

2 EXISTING AIR HANDLING UNIT TO REMAIN. REMOVE UNE-USE DURING CONSTRUCTION. DISCONNECT GAS AND REMOVE ASSOCIATED ELECTRICAL CONTROLS. CAP DUCT CONNECTIONS DURING CONSTRUCTION. RE-INSTALL UNIT AND PROVIDE NEW CURB (MINIMUM 8-INCH, WITH 2-INCH SPRING VIBRATION ISOLATION). RE-CONNECT DUCT AND ELECTRICAL.

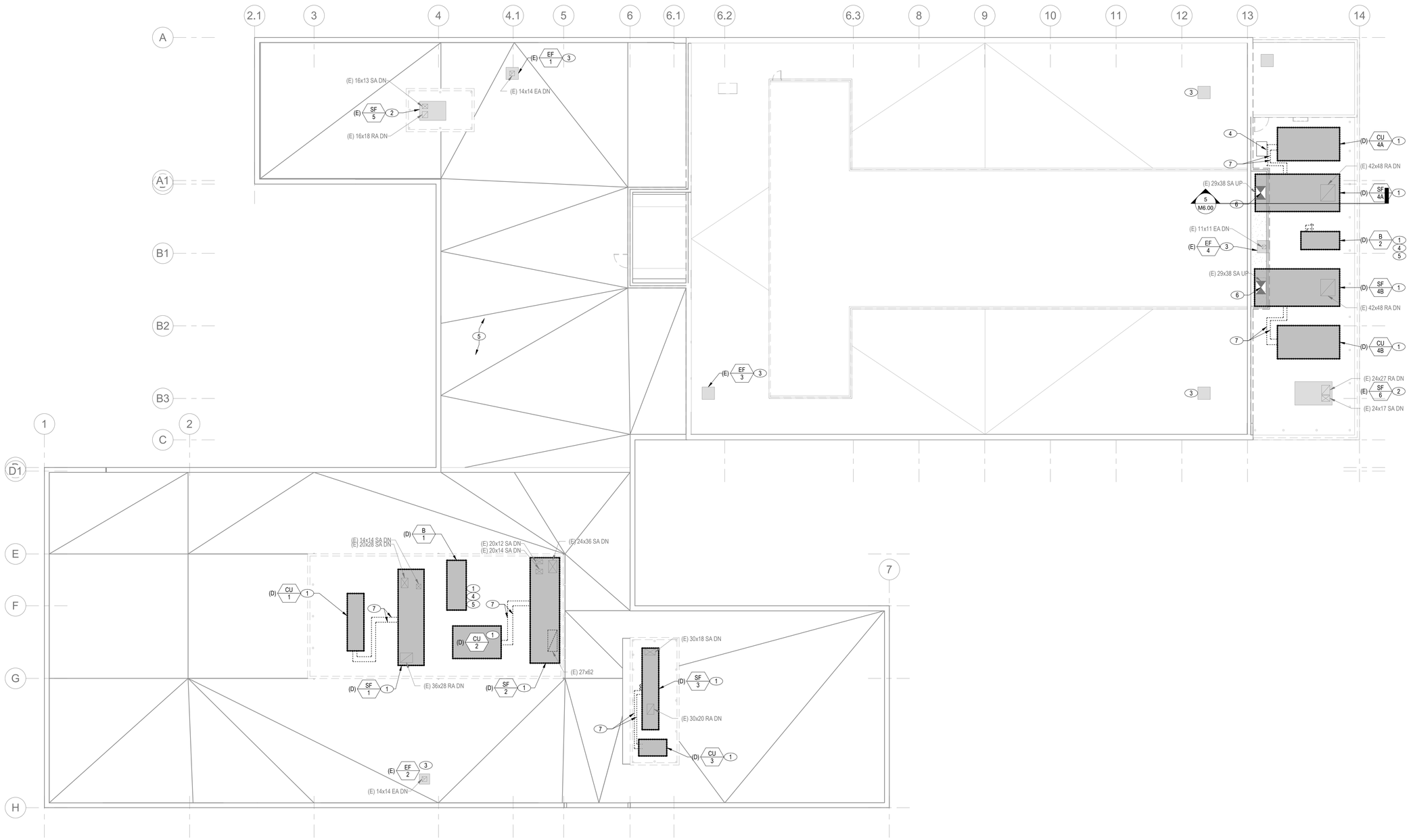
3 EXISTING EXHAUST FAN TO REMAIN. REMOVE UNIT AND ASSOCIATED CURB, STORE FOR RE-USE DURING CONSTRUCTION. REMOVE ASSOCIATED DUCT CONNECTIONS, ELECTRICAL CONTROLS, ETC. CAP DUCT CONNECTIONS DURING CONSTRUCTION. RE-INSTALL UNIT AND CURB, RECONNECT DUCT AND ELECTRICAL CONTROLS.

4 EXISTING AIR COMPRESSOR, LOCATED IN BOILER ENCLOSURE, TO BE DEMOLISHED. ASSOCIATED PNEUMATIC LINES TO BE REMOVED FROM CEILING.

5 NATURAL GAS PIPING SERVING EXISTING BOILER B-1 SHALL BE DEMOLISHED. REFER TO PLUMBING SHEETS.

6 DEMOLISH DUCTWORK AS REQUIRED TO REPLACE AIR HANDLING UNIT. EXISTING DISCHARGE DAMPER AND ASSOCIATED ELECTRICAL AND CONTROLS SHALL BE REMOVED COMPLETE.

7 EXISTING REFRIGERANT PIPING SHALL BE REMOVED COMPLETE.



1 ROOF PLAN - HVAC DEMO

SCALE: 1" = 10'-0"

1" = 10'-0"

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NORTH

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KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

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ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER
OREGON
Number 81596PE
Steve Nollkamper
FEBRUARY 8, 2022
STEVEN A. NOLLKAMPER

DEMO - ROOF PLAN -HVAC

MD1.02

GENERAL NOTES

A. THESE GENERAL NOTES APPLY TO ALL SHEETS.

B. CONTRACTOR SHALL REMOVE ACCESS PANELS AND REINSTALL AS REQUIRED FOR THE REPLACEMENT OF MECHANICAL EQUIPMENT. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK AND CONTACT ENGINEER AND ARCHITECT OF ANY DISCREPANCIES.

C. CONTRACTOR SHALL REMOVE ALL HYDRONIC PIPING ASSOCIATED WITH EXISTING SYSTEM.

D. PROVIDE PRECONSTRUCTION TEST AND BALANCE READINGS (MIN/MAX AIRFLOWS) OF ALL AIR SYSTEMS. THESE SYSTEMS SHALL BE RETURNED TO THESE INITIAL VALUES UPON THE COMPLETION OF THE AHU AND VAV REPLACEMENT.

E. FOR NEW CEILING, PROVIDE NEW SUPPLY/RETURN DIFFUSER AS INDICATED ON PLAN. REPLACE FLEX DUCT AND REPLACE WITH NEW, RECONNECT TO EXISTING DUCTWORK. ADD NEW DUCTWORK AS NECESSARY IN ORDER TO NOT EXCEED 5-FEET OF FLEX DUCT.

KEYED NOTES (#)

1 PROVIDE AND INSTALL DIFFERENTIAL PRESSURE SENSOR FOR SPACE PRESSURIZATION CONTROL.

2 REFER TO ARCHITECTURAL PLANS FOR EXISTING CEILING REQUIREMENTS. MECHANICAL CONTRACTOR RESPONSIBLE TO COORDINATE WITH ALL DISCIPLINES TO MINIMIZE IMPACT ON EXISTING CEILING WHILE REMOVING VAV TERMINAL UNIT / ELECTRIC UNIT HEATER AND ASSOCIATED COMPONENTS. RECONFIGURE EXISTING DUCTWORK ABOVE CEILING AS REQUIRED TO MAINTAIN NEC CLEARANCES IN FRONT OF ELECTRIC HEATER. COORDINATE WITH OTHER TRADES AS REQUIRED FOR RELOCATING OTHER UTILITIES. REFER TO 3/M9.01 FOR VAV TERMINAL UNIT INSTALLATION REQUIREMENTS.

3 PROVIDE AVERAGING TEMPERATURE SENSOR FOR SF-4A AND 4B

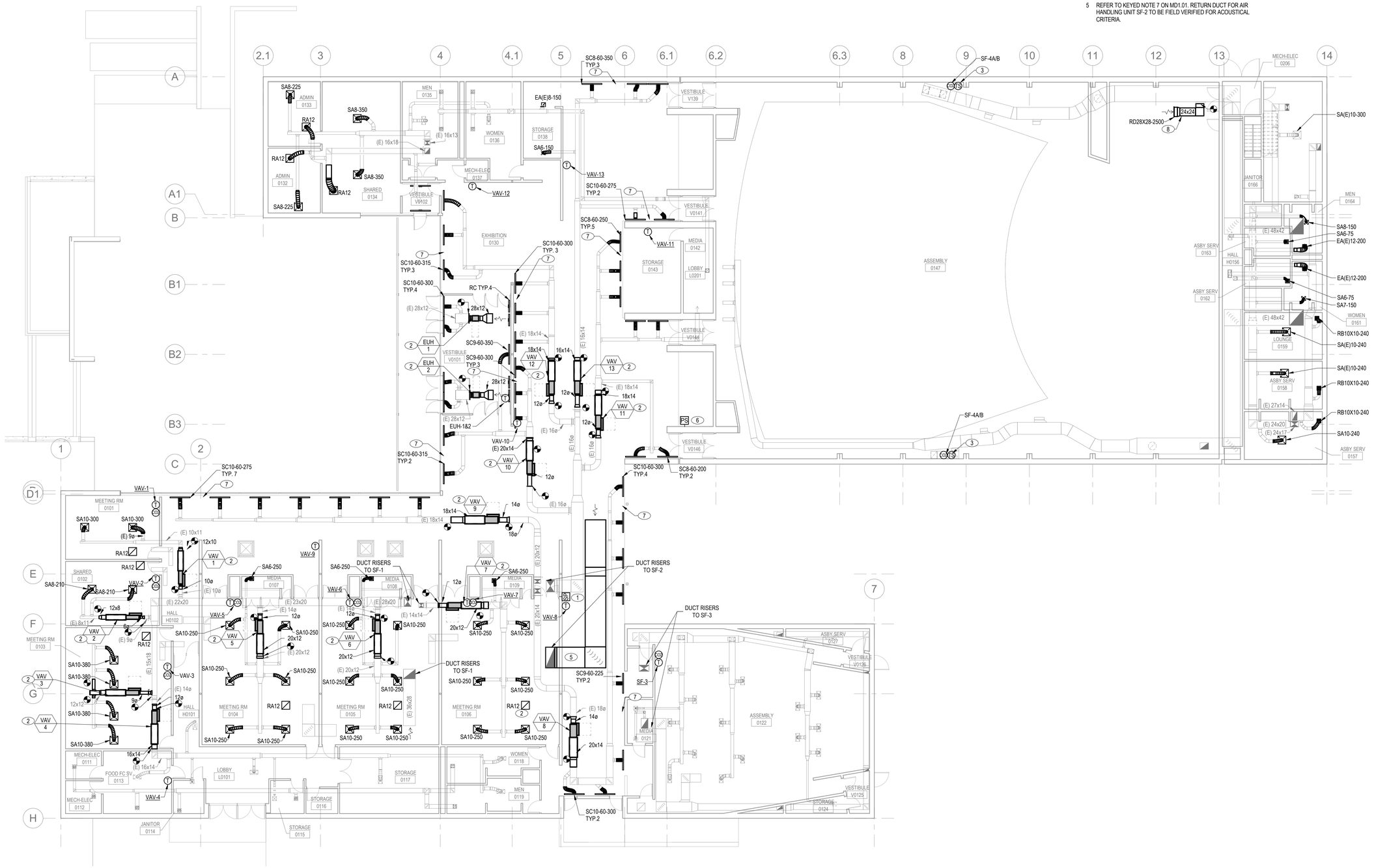
4 NOT USED.

5 REFER TO KEYED NOTE 7 ON M/D1.01. RETURN DUCT FOR AIR HANDLING UNIT SF-2 TO BE FIELD VERIFIED FOR ACOUSTICAL CRITERIA.

6 PRESSURE SENSOR TO BE LOCATED IN MAIN LOBBY. REFER TO M800 SERIES SHEETS FOR SEQUENCE OF OPERATION FOR AIR HANDLING UNITS.

7 PROVIDE CONTINUOUS SLOT DIFFUSER FOR MAIN LOBBY RETURN AIR PATH ALONG BORDER OF NEW CEILING, TYPICAL.

8 NEW DUCT TO BE INSTALLED WITH 2-INCH ACOUSTICAL LINER. NEW GRILLE NOT TO EXCEED NC-20.



1 FLOOR PLAN - MAIN LEVEL- HVAC

SCALE: 1" = 10'-0"

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T (206) 340 9500
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KPFF
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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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REGISTERED PROFESSIONAL ENGINEER
OREGON
81596PE
Steve Nollkamper
RENEWAL DATE: JANUARY 9, 2023
STEVEN A. NOLLKAMPER

MAIN LEVEL PLAN - HVAC

M2.01

GENERAL NOTES

A. THESE GENERAL NOTES APPLY TO ALL SHEETS.

B. CONTRACTOR SHALL REMOVE ACCESS PANELS AND REINSTALL AS REQUIRED FOR THE REPLACEMENT OF MECHANICAL EQUIPMENT. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK AND CONTACT ENGINEER AND ARCHITECT OF ANY DISCREPANCIES.

C. CONTRACTOR SHALL REMOVE ALL HYDRONIC PIPING ASSOCIATED WITH EXISTING SYSTEM.

D. PROVIDE PRECONSTRUCTION TEST AND BALANCE READINGS (MIN/MAX AIRFLOWS) OF ALL AIR SYSTEMS. THESE SYSTEMS SHALL BE RETURNED TO THESE INITIAL VALUES UPON THE COMPLETION OF THE AHU AND VAV REPLACEMENT.

E. EXISTING HOUSE KEEPING PADS SHALL BE REMOVED AND STORED FOR REUSE. REFER TO ARCHITECTURAL PLANS FOR EXTENT OF ROOF REMOVAL AND REPLACEMENT.

F. EXISTING EQUIPMENT IDENTIFIED AS TO REMAIN SHALL BE ECONNECTED TO ORIGINAL SYSTEM DUCTWORK WITH NEW LEXIBLE DUCT CONNECTIONS.

KEYED NOTES (#)

1 PER OREGON STATE UNIVERSITY STANDARDS, EQUIPMENT TO BE SUBMITTED SEPERATELY FOR REVIEW UNDER THE CONSTRUCTION STANDARDS SUBSTITUTION REQUEST PROCESS.

2 CUSTOM EQUIPMENT TO BE SELECTED TO HAVE SINGLE SIDED ACCESS FOR MECHANICAL AND ELECTRICAL ACCESS.

3 REFER TO 5/M6.00 FOR DETAILS FOR SUPPLY AIR CONNECTION OF AIR HANDLINGS SF-4A AND SF-4B.

4 EXISTING LEIBERT UNIT (DEDICATED FOR PIANO STORAGE ROOM) TO REMAIN. REMOVE UNIT AND ASSOCIATED HOUSE KEEPING PAD, STORE FOR RE-USE DURING CONSTRUCTION. REMOVE ASSOCIATED REFRIGERANT LINES, ELECTRICAL CONTROLS, ETC. RE-INSTALL UNIT AND HOUSE KEEPING PAD, RECONNECT REFRIGERANT AND ELECTRICAL CONTROLS.

5 EXISTING EXHAUST FAN TO REMAIN. REMOVE UNIT AND ASSOCIATED CURB, STORE FOR RE-USE DURING CONSTRUCTION. REMOVE ASSOCIATED DUCT CONNECTIONS, ELECTRICAL CONTROLS, ETC. CAP DUCT CONNECTIONS DURING CONSTRUCTION. RE-INSTALL UNIT AND CURB, RECONNECT DUCT AND ELECTRICAL CONTROLS.

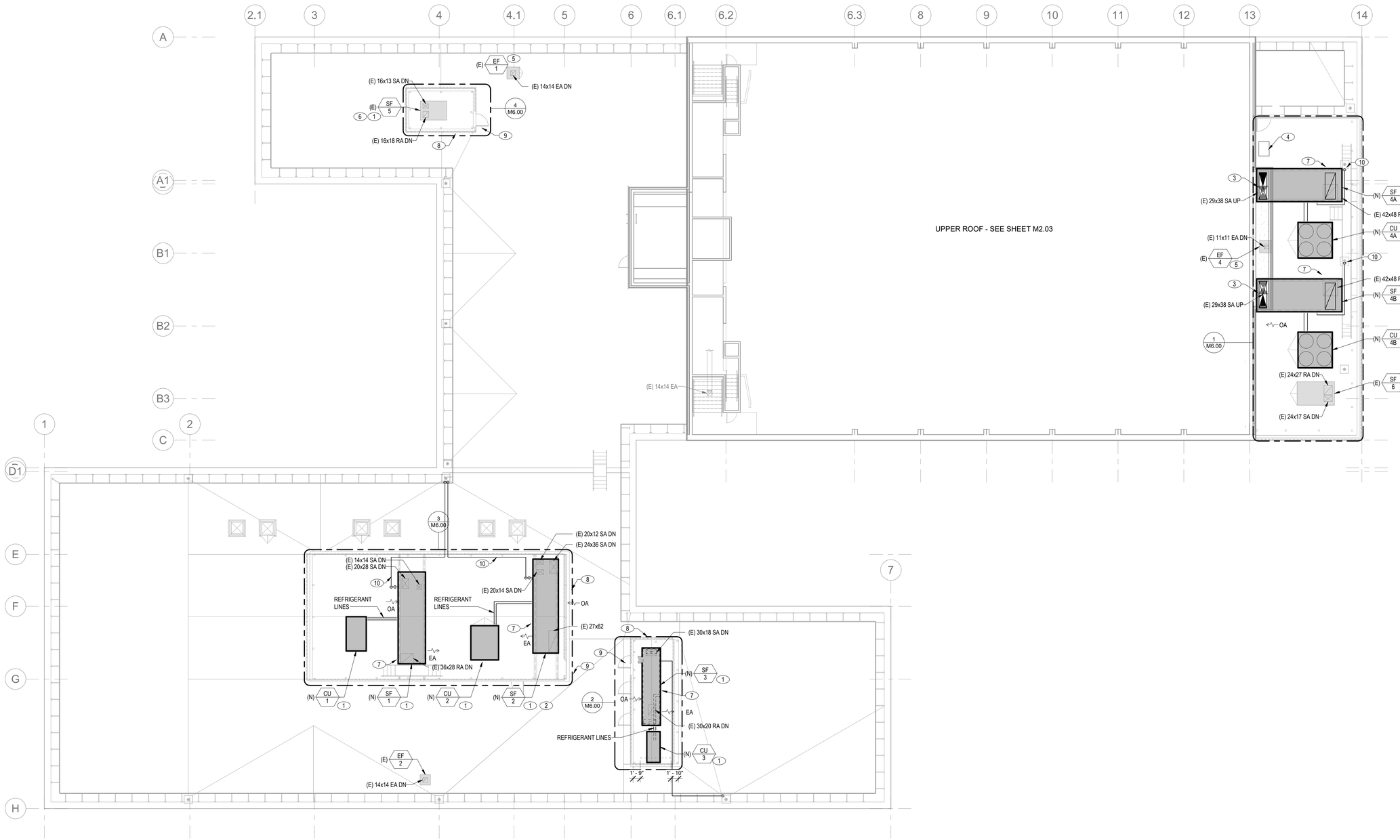
6 EXISTING AIR HANDLING UNIT TO REMAIN. REMOVE UNE-USE DURING CONSTRUCTION. DISCONNECT GAS AND REMOVE ASSOCIATED ELECTRICAL CONTROLS. CAP DUCT CONNECTIONS DURING CONSTRUCTION. RE-INSTALL UNIT AND PROVIDE NEW CURB (MINIMUM 8-INCH, WITH 2-INCH SPRING VIBRATION ISOLATION). RE-CONNECT DUCT AND ELECTRICAL.

7 CONTRACTOR SHALL FIELD VERIFY CONDITION OF EXISTING DUCT WITHIN SUPPLY AIR PLENUM. PLENUM SHALL BE PROVIDED WITH WITH INSULATED DUCT. REFER TO 5/M6.00 FOR ADDITIONAL DETAILS.

8 MECHANICAL SCREEN RE HAVE MINIMUM OF 2-FEET UNDERCUT. REFER TO ARCHITECTURAL DRAWINGS FOR MECHANICAL SCREEN DETAILS.

9 REFER TO ENLARGED PLANS ON SHEET M6.00 FOR MECHANICAL SCREEN ACCESS REQUIREMENTS.

10 AIR HANDLING UNIT CONDENSATE TO ROOF DRAIN.



1 ROOF PLAN - HVAC

SCALE: 1" = 10'-0"

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MECHANICAL ENGINEER
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GLUMAC
900 SW 5th Ave, Suite 1600
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T (503) 227 5280

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Gladstone, OR 97027
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REGISTERED PROFESSIONAL ENGINEER
OREGON
81596PE
JANUARY 8, 2008
STEVEN A. NOLLMEYER

ROOF PLAN - LOWER ROOF - HVAC

M2.02

1" = 10'-0"
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NORTH

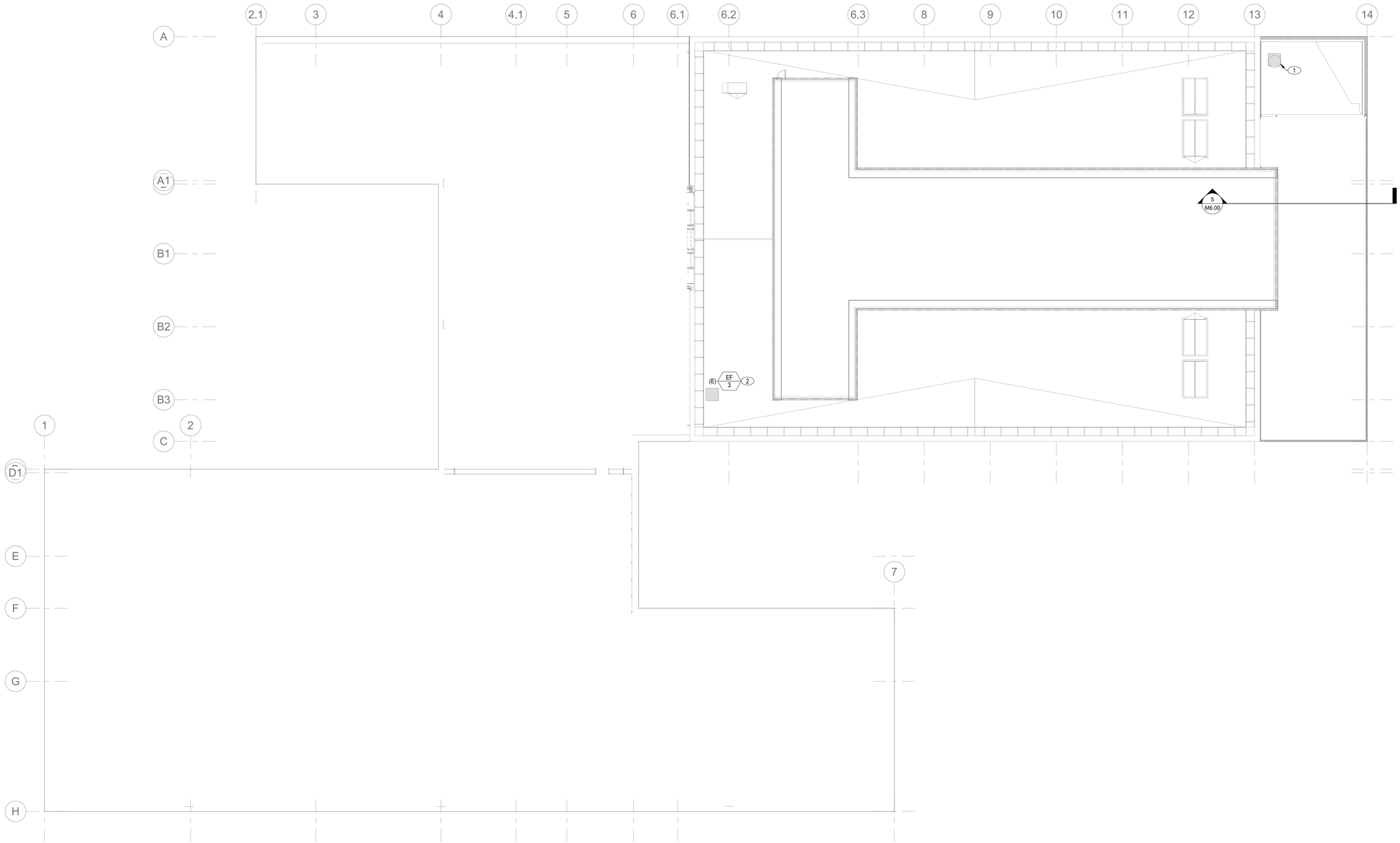
GENERAL NOTES

A. ALL EXISTING TO REMAIN EQUIPMENT SHALL BE RECONNECTED TO ORIGINAL SYSTEM DUCTWORK.

KEYED NOTES (#)

1 EXISTING VENTILATOR TO REMAIN. REMOVE UNIT, STORE FOR RE-USE DURING CONSTRUCTION. REMOVE ASSOCIATED DUCT CONNECTIONS, ELECTRICAL CONTROLS, ETC. CAP DUCT CONNECTIONS DURING CONSTRUCTION. RE-INSTALL UNIT, RECONNECT DUCT AND ELECTRICAL CONTROLS.

2 EXISTING EXHAUST FAN TO REMAIN. REMOVE UNIT AND ASSOCIATED CURB, STORE FOR RE-USE DURING CONSTRUCTION. REMOVE ASSOCIATED DUCT CONNECTIONS, ELECTRICAL CONTROLS, ETC. CAP DUCT CONNECTIONS DURING CONSTRUCTION. RE-INSTALL UNIT AND CURB, RECONNECT DUCT AND ELECTRICAL CONTROLS.



1 ROOF PLAN - UPPER LEVEL - HVAC

SCALE: 1" = 10'-0"

1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 8, 2010
STEVEN A. NOLLKAMPER

ROOF PLAN - UPPER ROOF - HVAC

M2.03

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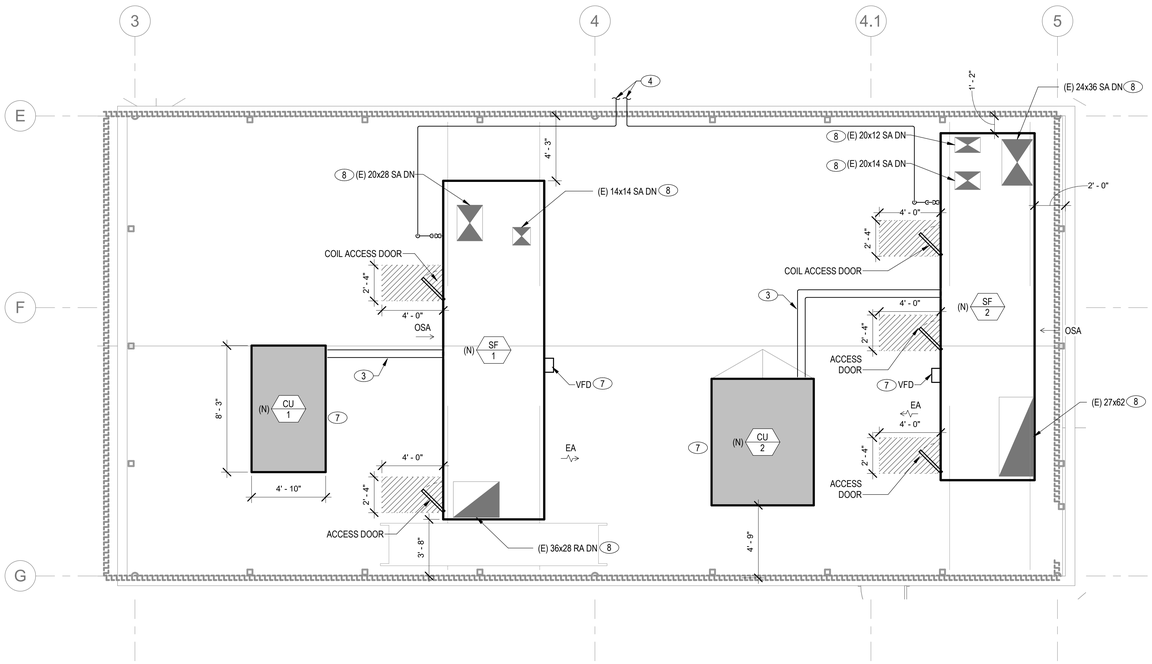
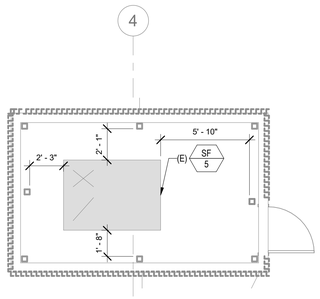


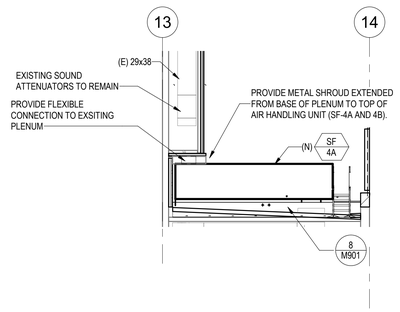
3 ENLARGED WEST ROOF PLAN - HVAC

SCALE: 1/4" = 1'-0"



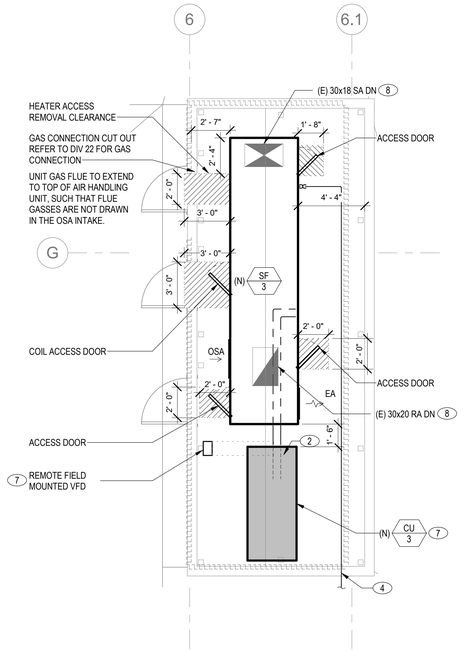
4 ENLARGED NORTHWEST ROOF PLAN - HVAC

SCALE: 1/4" = 1'-0"



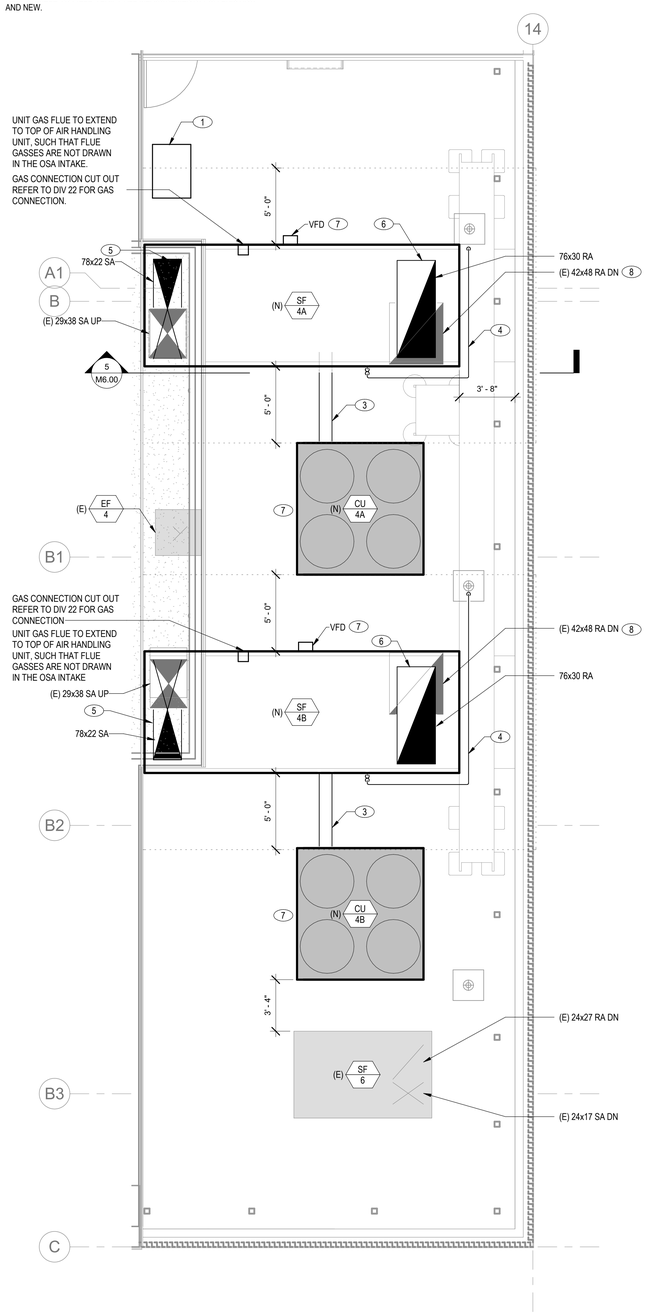
5 MECHANICAL SECTION - TYPICAL FOR SF-4A & 4B

SCALE: 1/8" = 1'-0"



2 ENLARGED ASSEMBLY ROOF PLAN - HVAC

SCALE: 1/4" = 1'-0"



1 ENLARGED EAST ROOF PLAN - HVAC

SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. THESE GENERAL NOTES APPLY TO ALL SHEETS.

B. CONTRACTOR SHALL REMOVE ACCESS PANELS AND REINSTALL AS REQUIRED FOR THE REPLACEMENT OF MECHANICAL EQUIPMENT. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK AND CONTACT ENGINEER AND ARCHITECT OF ANY DISCREPANCIES.

C. CONTRACTOR SHALL REMOVE ALL HYDRONIC PIPING ASSOCIATED WITH EXISTING SYSTEM.

D. PROVIDE PRECONSTRUCTION TEST AND BALANCE READINGS (MIN/MAX AIRFLOWS) OF ALL AIR SYSTEMS. THESE SYSTEMS SHALL BE RETURNED TO THESE INITIAL VALUES UPON THE COMPLETION OF THE AHU AND VAV REPLACEMENT.

E. EXISTING HOUSE KEEPING PADS SHALL BE REMOVED AND STORED FOR REUSE. REFER TO ARCHITECTURAL PLANS FOR EXTENT OF ROOF REMOVAL AND REPLACEMENT.

F. EXISTING EQUIPMENT IDENTIFIED AS TO REMAIN SHALL BE ECONNECTED TO ORIGINAL SYSTEM DUCTWORK WITH NEW FLEXIBLE DUCT CONNECTIONS.

G. DIMENSIONS ARE PROVIDED FOR REFERENCE, ONLY. CONTRACTOR RESPONSIBLE TO FIELD VERIFY ALL MEASUREMENTS FOR EXISTING AND NEW.

KEYED NOTES (#)

1 EXISTING LEIBERT UNIT SHALL BE REMOVED FOR ROOF REPLACEMENT.
STORE UNIT AND REINSTALL ON EQUIPMENT RAILS AND NEOPRENE PADS FOR VIBRATION ISOLATION. PROVIDE NEW PIPE AND PIPE PORTAL FOR REFRIGERANT PIPING. INSULATE REFRIGERANT PIPING WHERE DEMOLISHED FOR REMOVAL.

2 ROUTE REFRIGERANT PIPING THROUGHBASE AND UNIT UP TO DX COIL. SECURE PIPING TO PIPE SUPPORT. SIZE PIPING PER MANUFACTURERS RECOMMENDATIONS.

3 ROUTE REFRIGERANT PIPING TO ASSOCIATED UNIT AND INSULATE. SECURE REFRIGERANT PIPING TO PIPE SUPPORT. SIZE PIPING PER MANUFACTURERS RECOMMENDATIONS.

4 ROUTE CONDENSATE PIPING TO ROOF DRAIN.

5 CONNECT NEW 78"X22" SUPPLY DUCT TO EXISTING SUPPLY AIR PLENUM.

6 PROVIDE PLENUM CURB AND CONNECT NEW 76"X30" RETURN TO EXISTING RETURN AIR DUCTWORK.

7 PROVIDE A REMOTE DISCONNECT AS REQUIRED IF INTEGRAL DISCONNECT / VFD DOES NOT MEET NEC CLEARANCE REQUIREMENTS.

8 MECHANICAL CONTRACTOR TO CONSTRUCT SHEET METAL PLENUM BOX TO EXISTING DUCT ROOF PENETRATIONS. CONNECT VIA FLEXIBLE DUCT TO NEW AIR HANDLING UNIT INLET AND DISCHARGE. TO BE FIELD COORDINATED WITH NEW AIR HANDLING UNIT CURB.

bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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GLUMAC
900 SW 5th Ave, Suite 1600
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Gladstone, OR 97027
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REGISTERED PROFESSIONAL ENGINEER
81596PE
OREGON
Steve Williams
RENEWAL: JANUARY 6, 2023
STEVEN A. NOLLMEYER

ENLARGED PLANS

M6.00

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VARIABLE AIR VOLUME (MULTIZONE) AIR HANDLING UNIT
– DX COOLING COIL

A. FEATURES
   1. DIRECT EXPANSION REFRIGERATION COOLING COIL
   2. SUPPLY FAN AIR FLOW MONITORING
   3. RETURN FAN AIR FLOW MONITORING
   4. OUTSIDE AIR FLOW MONITORING
   5. ENTHALPY AIR ECONOMIZER
   6. TRIM AND RESPOND STATIC AIR PRESSURE RESET
   7. TRIM AND RESPOND SUPPLY AIR TEMPERATURE RESET
   8. ALL SETPOINTS SHALL BE USER ADJUSTABLE

B. RUN CONDITIONS - REQUESTED:
   1. THE UNIT SHALL RUN WHENEVER:
      a. THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE.
      b. ANY ZONE IS OCCUPIED.
      c. A DEFINABLE NUMBER OF UNOCCUPIED ZONES NEED HEATING OR COOLING.

C. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. SUPPLY AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.
   2. RETURN AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.
   3. HIGH STATIC SHUTDOWN: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A HIGH STATIC SHUTDOWN SIGNAL. THE FANS SHALL BE SHUTDOWN THROUGH A DUCT STATIC PRESSURE HIGH LIMIT SWITCH. THE SWITCH SHALL BE SET TO TRIP AT A PRESSURE THAT IS 20% GREATER THAN THE MAXIMUM DESIGN WORKING PRESSURE OR 75% OF THE SMACNA SUPPLY DUCT PRESSURE RATING, WHICHEVER IS GREATER.
   4. FREEZE PROTECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZE CONDITION STATUS.

D. AHU OPTIMAL START: THE UNIT SHALL START, AT LEAST ONE HOUR, PRIOR TO SCHEDULED OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONES TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

E. SUPPLY FAN: THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      b. SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      c. SUPPLY FAN VFD FAULT.

F. SUPPLY AIR DUCT STATIC PRESSURE CONTROL: THE BAS SHALL MEASURE DUCT STATIC PRESSURE AND SHALL MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT AS FOLLOWS:
   1. THE BASE DUCT STATIC PRESSURE SETPOINT SHALL BE SET TO 1.0 INCHES H2O.
   2. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 0.5 INCHES H2O ABOVE THE BASE STATIC PRESSURE SETPOINT.
   3. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO 0.25 INCHES H2O BELOW THE BASE STATIC PRESSURE SETPOINT.
   4. THE FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY MANUFACTURER.
   5. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      b. LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE DROPS TO 0.5 INCHES H2O.

G. RETURN FAN: THE RETURN FAN SHALL RUN WHENEVER THE SUPPLY FAN RUNS.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. RETURN FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      b. RETURN FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      c. RETURN FAN VFD FAULT.

H. RETURN FAN SPEED CONTROL: THE BAS SHALL MODULATE THE RETURN FAN SPEED BY THE GREATER OF THE TWO FOLLOWING CONTROL LOOPS:
   1. THE SUPPLY FAN VFD SIGNAL SHALL BE UTILIZED FOR THE PRIMARY CONTROL LOOP TO DETERMINE THE CFM SETPOINT OF THE RETURN FANS SENSED BY THE VFD SPEED SIGNAL. THE CFM SETPOINT SHALL BE USED TO ESTABLISH A LINEAR RELATIONSHIP FROM THE SIGNAL ESTABLISHED DURING THE AIR BALANCE BASED ON THE MAXIMUM MEASURED SUPPLY CFM LESS ANY CFM REQUIRED TO MAINTAIN THE BUILDING AT +0.05” WC, AND.
   2. THE SECONDARY CONTROL LOOP SHALL BE BASED ON MAINTAINING A POSITIVE PRESSURE IN THE EXHAUST AIR PLENUM BY MODULATING THE EXHAUST AIR DAMPERS TO MAINTAIN AN EXHAUST PLENUM PRESSURE OF +0.02” WC MINIMUM TO 0.07” WC MAXIMUM.
   3. THE FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY VFD MANUFACTURER.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      b. LOW RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE DROPS TO 0.25 INCHES H2O.

J. SUPPLY AIR TEMPERATURE SETPOINT - OPTIMIZED: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING REQUIREMENTS.
   1. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENTS AS FOLLOWS:
      a. THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F.
      b. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 53°F.
      c. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 72°F.

K. COOLING STAGES:
   1. THE BAS SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE THE COOLING TO MAINTAIN THE COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE MINIMUM RUNTIME.
   2. MECHANICAL COOLING SHALL BE ENABLED WHENEVER:
      OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJUSTABLE).
      AND, THE ECONOMIZER MODE (IF PRESENT) IS DISABLED OR FULLY OPEN.
      AND, THE SUPPLY FAN STATUS IS ON.
      AND, THE HEATING MODE (IF PRESENT) IS NOT ACTIVE.
   3. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 5°F GREATER THAN SETPOINT.
      b. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS BELOW 40°F.

L. AIR ECONOMIZER: THE BAS SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION PER DESIGN AND AS DETERMINED BY THE TEST AND BALANCE CONTRACTOR WHENEVER OCCUPIED.
   1. THE ECONOMIZER SHALL BE ENABLED WHENEVER:
      a. OUTSIDE AIR TEMPERATURE IS LESS THAN 72°F.
      b. OR, THE OUTSIDE AIR ENTHALPY IS LESS THAN 22 BTU/LB.
      c. AND, THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
      d. AND, THE SUPPLY FAN STATUS IS ON.
   2. THE ECONOMIZER SHALL CLOSE WHENEVER:
      a. MIXED AIR TEMPERATURE DROPS BELOW THE SUPPLY AIR TEMPERATURE REQUIRED TO MEET THE COOLING DEMAND.
      b. OR, THE FREEZESTAT (IF PRESENT) IS ENERGIZED.
      c. OR, ON LOSS OF SUPPLY FAN STATUS.

M. THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. DURING OPTIMAL START UP THE MIXED AIR DAMPER SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPER SHALL MODULATE TO FULLY CLOSED POSITION.

N. MINIMUM OUTSIDE AIR VENTILATION: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MEASURE THE OUTSIDE AIRFLOW AND MODULATE THE OUTSIDE AIR DAMPERS TO MAINTAIN THE PROPER MINIMUM OUTSIDE AIR VENTILATION, OVERRIDING NORMAL DAMPER CONTROL. ON DROPPING OUTSIDE AIRFLOW, THE BAS SHALL MODULATE THE OUTSIDE AIR DAMPERS OPEN TO MAINTAIN THE OUTSIDE AIRFLOW SETPOINT.

O. MINIMUM OUTSIDE AIR VENTILATION - CARBON DIOXIDE (CO2) CONTROL: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MONITOR ZONE CO2 LEVELS SERVED BY THIS AIR HANDLING UNIT. THE BAS SHALL TAKE THE HIGHEST ZONE CO2 LEVEL AND MODULATE THE OUTSIDE AIR DAMPER(S) OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT OF 600 PPM ABOVE AMBIENT OUTDOOR CO2 LEVEL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE HIGHEST ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM.

P. PRE-OCCUPANCY: THE AIR HANDLER SHALL BE ENERGIZED A MINIMUM OF ONE HOUR PRIOR TO SCHEDULED OCCUPIED PERIOD TO CIRCULATE DESIGN MINIMUM VENTILATION AIR THROUGHOUT THE BUILDING. TEMPERATURE CONTROL MAY CONTINUE TO FUNCTION PER THE UN-OCCUPIED SCHEDULE.

R. FINAL FILTER DIFFERENTIAL PRESSURE MONITOR: THE BAS SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FINAL FILTER.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. FINAL FILTER CHANGE REQUIRED: FINAL FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT INITIALLY SET TO 0.75” WG ABOVE THE CLEAN FILTER DIFFERENTIAL STATIC PRESSURE.

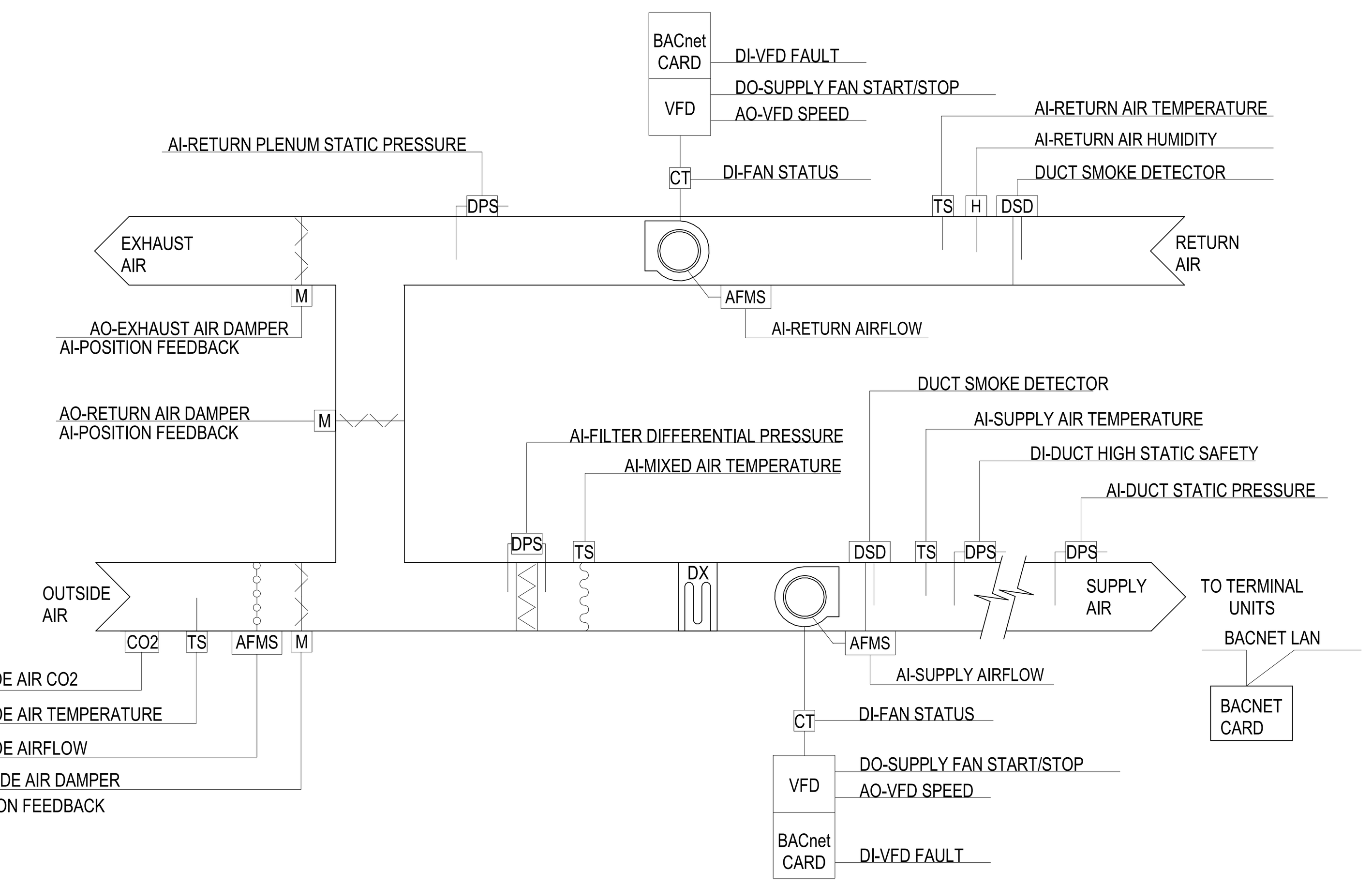
S. MIXED AIR TEMPERATURE: THE BAS SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT).
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90°F.
      b. LOW MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS LESS THAN 40°F.

T. MIXED AIR TEMPERATURE MINIMUM CONTROL: THE BAS SHALL MONITOR THE MIXED AIR TEMPERATURE AND MAINTAIN A MINIMUM MIXED AIR TEMPERATURE OF 50°F.
   1. BAS SHALL INCREASE ALL OF THE CONNECTED VAV TERMINAL UNITS MINIMUM AIR VOLUMES BY 5%, IN INCREMENTS OF 5 MINUTES (ADJ.)

U. RETURN AIR HUMIDITY: THE BAS SHALL MONITOR THE RETURN AIR HUMIDITY AND USE AS REQUIRED FOR ECONOMIZER CONTROL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH RETURN AIR HUMIDITY: IF THE RETURN AIR HUMIDITY IS GREATER THAN 70% RH.
      b. LOW RETURN AIR HUMIDITY: IF THE RETURN AIR HUMIDITY IS LESS THAN 35% RH.

V. RETURN AIR TEMPERATURE: THE BAS SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL (IF PRESENT).
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F.
      b. LOW RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F.

W. SUPPLY AIR TEMPERATURE: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F.
      b. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F.



NOTES:
1. SMOKE DETECTOR: FURNISHED BY DIV 28, INSTALLED BY DIV 23. HARDWIRE SMOKE DETECTOR TO EMERGENCY STOP TERMINALS ON SUPPLY AND RETURN FAN BY DIV 26/28.
2. DUCT HIGH STATIC SAFETY SWITCH: SET AT 0.5" BELOW DUCT CONSTRUCTION STATIC PRESSURE CLASSIFICATION. HARDWIRE TO EMERGENCY STOP TERMINALS ON SUPPLY AND RETURN FAN BY ELECTRICAL.
3. DUCT STATIC PRESSURE SENSOR: FURNISHED AND INSTALLED BY CONTROLS CONTRACTOR. REFER TO AIR CONDITIONING UNIT SCHEDULE FOR THE EXACT QUANTITY OF FANS AND OTHER SYSTEM COMPONENTS.

1 SF-1 & SF-2 VAV DX RETURN FAN-CONTROL (SF 1) (SF 2)

SCALE: NONE

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER
81596PE
DocuSigned by:
Steve Nollkamper
5D48AE50AAC047D...
OREGON
JANUARY 8, 2009
STEVEN A. NOLLKAMPER

PERMIT SET

CONTROLS AND SEQUENCE OF OPERATION

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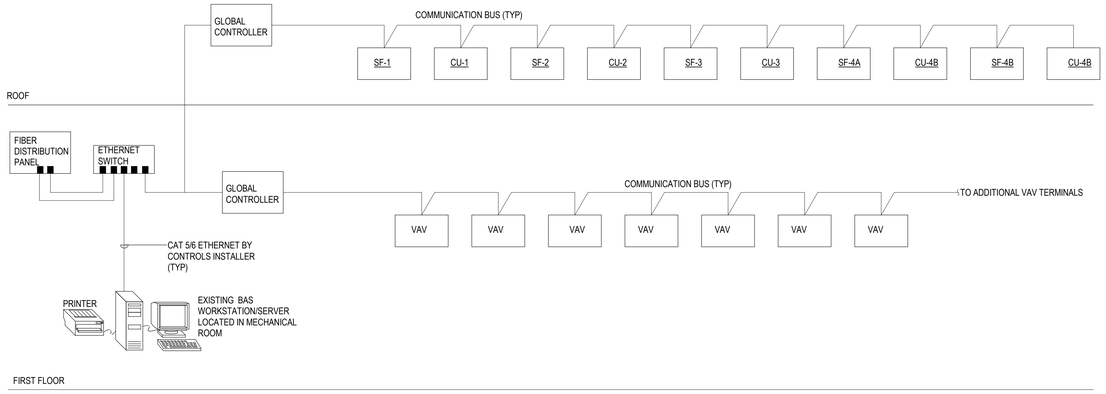


NOTES:
1. SYSTEM SHALL BE CONNECTED TO EXISTING ALTECH CONTROL SYSTEM.
2. REFER TO SPECIFICATIONS AND SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
3. COORDINATE LINE VOLTAGE POWER SUPPLY WITH ELECTRICAL INSTALLER.
4. COORDINATE ALL BAS WIRING AND DEVICES BETWEEN MECHANICAL INSTALLER AND CONTROLS INSTALLER.
5. PROVIDE AREA AND NETWORK CONTROLLERS AS REQUIRED.

3 BAS ARCHITECTURE-CONTROL

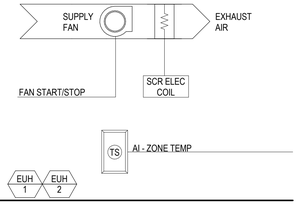
SCALE: NONE

ELECTRIC HEATER (DUCTED)

1. FEATURES:
   A. ELECTRIC HEATING COIL
   B. SUPPLY FAN

2. RUN CONDITIONS - CONTINUOUS
   A. OCCUPIED:
      a. THE UNIT FAN AND ELECTRIC COIL SHALL BE CONTINUOUSLY ENABLED WHEN OUTSIDE AIR TEMPERATURE IS LESS THAN 50°F TO MAINTAIN ZONE TEMPERATURE HEATING SET POINT OF 60°F (ADJUSTABLE).
   B. UNOCCUPIED:
      a. THE UNIT FAN AND ELECTRIC COIL SHALL BE CONTINUOUSLY ENABLED WHEN OUTSIDE AIR TEMPERATURE IS LESS THAN 50°F TO MAINTAIN ZONE TEMPERATURE HEATING SET POINT OF 50°F (ADJUSTABLE).

3. ALARMS:
   A. LOW TEMP:
      a. IF THE ZONE TEMPERATURE IS 5°F LESS THAN THE HEATING SETPOINT.



2 ELECTRIC HEATER - CONTROL

SCALE: NONE

VAV TERMINAL UNIT W/ ELECTRIC REHEAT & SCR CONTROLS

1. FEATURES:
   A. COOLING DAMPER AND ACTUATOR
   B. ELECTRIC REHEAT COIL
   C. CARBON DIOXIDE MONITORING (WHERE INDICATED)
   D. ALL SETPOINTS SHALL BE USER ADJUSTABLE

2. RUN CONDITIONS - SCHEDULED:
   A. THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE AND MAINTAIN THE FOLLOWING MODES:
      1. OCCUPIED MODE TEMPERATURES:
         a. COOLING SETPOINT: 75°F
         b. HEATING SETPOINT: 70°F

      2. UNOCCUPIED MODE TEMPERATURES:
         a. COOLING SETPOINT: 85°F
         b. HEATING SETPOINT: 60°F

      3. FOUR AIRFLOW CONTROL SETPOINTS SHALL APPLY AS FOLLOWS:
         a. OCCUPIED COOLING MAXIMUM AIR FLOW AS SCHEDULED
         b. OCCUPIED HEATING MAXIMUM AIR FLOW AS SCHEDULED
         c. OCCUPIED COOLING/HEATING MINIMUM AIR FLOW AS SCHEDULED
         d. UNOCCUPIED COOLING/HEATING MINIMUM AIR FLOW AS SCHEDULED

3. AIR FLOW CONTROL:
   A. THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:

   1. OCCUPIED:
      a. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.

      b. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION. THE VOLUME OF AIR IN THE DEADBAND SHALL NOT EXCEED THE LARGER OF 20% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE.

      c. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE BAS SHALL ENABLE HEATING AND MAINTAIN ROOM TEMPERATURE SETPOINT BY MODULATING THE REHEAT CAPACITY TO INCREASE THE SUPPLY AIR TEMPERATURE UP TO MAXIMUM SUPPLY AIR TEMPERATURE OF 90°F WHILE AIRFLOW IS KEPT AT THE HEATING MINIMUM FLOW RATE. UPON A FURTHER CALL FOR HEATING, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED HEATING AIRFLOW AND THE MAXIMUM HEATING AIRFLOW, AND THE REHEAT CAPACITY SHALL MODULATE TO MAINTAIN THE MAXIMUM SUPPLY AIR TEMPERATURE, UNTIL THE ZONE IS SATISFIED. THE MAXIMUM VOLUME OF PRIMARY AIR THAT IS REHEATED SHALL NOT EXCEED THE LARGER OF 50% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE.

   2. UNOCCUPIED:
      a. WHEN THE ZONE IS UNOCCUPIED THE ZONE DAMPER SHALL CONTROL TO ITS MINIMUM UNOCCUPIED AIRFLOW.
      b. WHEN THE ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.
      c. WHEN ZONE TEMPERATURE FALLS BELOW HEATING SETPOINT, THE BAS SHALL ENABLE HEATING AND REHEAT COIL TO MAINTAIN THE ZONE TEMPERATURE AT ITS HEATING SETPOINT.

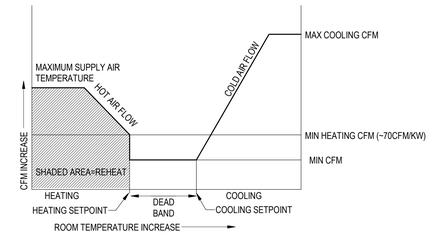
4. ELECTRIC REHEAT COIL:
   A. THE BAS SHALL MEASURE THE ZONE TEMPERATURE AND ENERGIZE THE ELECTRIC REHEAT COILS ON DROPPING TEMPERATURE TO MAINTAIN ITS HEATING SETPOINT.
   B. HIGH DISCHARGE AIR TEMPERATURE LIMIT:
      a. THE BMS SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND LIMIT REHEATING IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 20°F ABOVE THE ZONE TEMPERATURE.

5. MINIMUM VENTILATION ON CARBON DIOXIDE (CO2) CONCENTRATION (WHERE INDICATED):
   A. WHEN IN THE OCCUPIED MODE, THE BMS SHALL MEASURE THE ZONE CO2 LEVELS AND MODULATE THE ZONE DAMPER OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT OF NOT MORE THAN 600 PPM ABOVE AMBIENT OUTSIDE AIR CO2 CONCENTRATION.

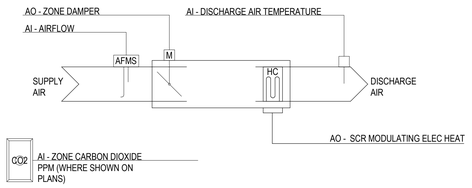
6. USER OVERRIDE OPERATION:
   A. ZONE SETPOINT ADJUST:
      a. THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.
   B. ZONE UNOCCUPIED OVERRIDE:
      a. A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

7. MINIMUM AIRFLOW REST (VAVS CONNECTED TO SF-1 & SF-2):
   A. REFER TO SF-1 & SF-2 CONTROL, MIXED AIR TEMPERATURE MINIMUM CONTROL SECTION, FOR RESETTING VAV TERMAINL UNIT MINIMUM AIRFLOWS.

8. ALARMS:
   A. HIGH ZONE TEMP:
      a. IF THE ZONE TEMPERATURE IS 5°F GREATER THAN THE COOLING SETPOINT.
   B. LOW ZONE TEMP:
      a. IF THE ZONE TEMPERATURE IS 5°F LESS THAN THE HEATING SETPOINT.
   C. HIGH ZONE CARBON DIOXIDE CONCENTRATION:
      a. IF THE ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM.
   D. HIGH DISCHARGE AIR TEMPERATURE:
      a. IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 100°F.
   E. LOW DISCHARGE AIR TEMPERATURE:
      a. IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 45°F.



NOTES:
1. IN THE COOLING MODE, AS THE ROOM TEMPERATURE INCREASES, THE UNIT MODULATES THE COLD AIRFLOW FROM THE MINIMUM TO THE MAXIMUM COOLING SETTING.
2. IN THE HEATING MODE, THE UNIT REFERENCES THE ALTERNATE (HIGHER) MINIMUM AIRFLOW. AS THE ROOM TEMPERATURE DECREASES, THE UNIT MODULATES THE AIRFLOW FROM THE HEATING MINIMUM TO MAXIMUM AND MODULATES THE ELECTRIC HEAT COIL.



NOTES:
1. ALL CONTROL POINTS TO BE CONNECTED DIRECTLY TO UNIT MOUNTED CONTROLLER WITH INTERFACE TO BAS COMMUNICATION BUSS.
2. VAV CONTROL FOR TYPICAL SYSTEMS WITH ELECTRIC HEATING COIL.
3. PROVIDE PROGRAMMABLE OVERRIDE BUTTON AT EACH TEMPERATURE SENSOR AS AN OVERRIDE TO ENERGIZE HVAC SYSTEM AFTER NORMAL OCCUPIED HOURS.

1 VAV TERMINAL W/ ELECTRIC REHEAT & SCR CONTROLS

SCALE: NONE

VAV 1 | VAV 2 | VAV 3 | VAV 4 | VAV 5 | VAV 6 | VAV 7 | VAV 8 | VAV 9 | VAV 10 | VAV 11 | VAV 12 | VAV 13

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bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area
EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER
81596PE
OREGON
JANUARY 8, 2008
STEVEN A. NOLLENBERGER

PERMIT SET

CONTROLS AND SEQUENCE OF OPERATION

M8.02

VARIABLE AIR VOLUME (SINGLE ZONE) AIR HANDLING UNIT – DX COOLING COIL/GAS HEATING

A. FEATURES
   1. DIRECT EXPANSION REFRIGERATION COOLING COIL
   2. NATURAL GAS FURNACE HEATING.
   3. SUPPLY FAN AIR FLOW MONITORING
   4. RETURN FAN AIR FLOW MONITORING
   5. OUTSIDE AIR FLOW MONITORING
   6. ENTHALPY AIR ECONOMIZER
   7. NATURAL GAS FURNACE HEATING.
   8. TRIM AND RESPOND SUPPLY AIR TEMPERATURE RESET
   9. ALL SETPOINTS SHALL BE USER ADJUSTABLE

B. RUN CONDITIONS – SCHEDULED:
   1. THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:
   2. OCCUPIED MODE TEMPERATURES:
      a. COOLING SETPOINT: 75°F COOLING SETPOINT TO MAINTAIN 5°F DEADBAND ABOVE HEATING SETPOINT
      b. HEATING SETPOINT: 70°F
   3. UNOCCUPIED MODE TEMPERATURES (NIGHT SETBACK):
      a. COOLING SETPOINT: 85°F
      b. HEATING SETPOINT: 60°F
   4. ZONE UNOCCUPIED OVERRIDE:
      a. A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR 2 HOURS. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.
   5. ZONE SETPOINT ADJUSTMENT:
      a. THE OCAUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.
   6. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY 5°F.
      b. LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 5°F.

C. AHU OPTIMAL START: THE UNIT SHALL START, AT LEAST ONE HOUR, PRIOR TO SCHEDULED OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONES TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

D. EMERGENCY SHUTDOWN:
   1. THE UNIT SHALL SHUTDOWN AND GENERATE A FAN STATUS ALARM UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL.
   2. SUPPLY AIR SMOKE DETECTION:
      a. THE UNIT SHALL SHUTDOWN AND GENERATE A FAN STATUS ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.

E. SUPPLY FAN:
   1. THE SUPPLY FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED PERIODS, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE MINIMUM RUNTIME.
   2. SUPPLY FAN CONTROL: THE SUPPLY FAN SPEED SHALL BE INDEXED AS FOLLOWS:
      a. LOW SPEED SHALL RUN ANYTIME THE FIRST STAGE OF COOLING OR HEATING IS ENABLED.
      b. HIGH SPEED SHALL RUN ANYTIME THE SECOND STAGE OF COOLING OR HEATING IS ENABLED.
   3. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      b. SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      c. SUPPLY FAN VFD FAULT.
      d. SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

F. COOLING:
   1. THE BAS SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE MINIMUM RUNTIME.
   2. THE COOLING SHALL BE ENABLED WHENEVER:
      a. THERE IS A CALL FOR COOLING.
      b. AND, THE ECONOMIZER IS DISABLED OR FULLY OPEN.
      c. AND, THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.
      d. AND, THE SUPPLY FAN STATUS IS ON.
      e. AND, THE HEATING IS NOT ACTIVE.

G. HEATING
   1. THE BAS SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE HEATING TO MAINTAIN ITS HEATING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE MINIMUM RUNTIME.
   2. THE HEATING SHALL BE ENABLED WHENEVER:
      a. THERE IS A CALL FOR HEATING.
      b. AND, THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
      c. AND, THE SUPPLY FAN STATUS IS ON.
      d. AND, THE COOLING IS NOT ACTIVE.

H. SUPPLY AIR TEMPERATURE (INTEGRATED AND MODULATED ECONOMIZER OPERATION):
   1. THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND USE AS REQUIRED FOR INTEGRATED ECONOMIZER CONTROL.
   2. ALARMS SHALL BE PROVIDED AS FOLLOWS WHEN IN ECONOMIZER OPERATION:
      a. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 72°F.
      b. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F.

I. SUPPLY AIR TEMPERATURE IN HEATING OR COOLING MODE:
   1. THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND USE AS REQUIRED FOR COOLING AND HEATING CONTROL:
      a. HIGH SUPPLY AIR TEMPERATURE IN COOLING MODE: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 75°F.
      b. LOW SUPPLY AIR TEMPERATURE IN COOLING MODE: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F.
      c. HIGH SUPPLY AIR TEMPERATURE IN HEATING MODE: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 110°F.
      d. LOW SUPPLY AIR TEMPERATURE IN HEATING MODE: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 80°F.

J. RETURN AIR TEMPERATURE:
   1. THE BAS SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL.
   2. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F.
      b. LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F.

L. AIR ECONOMIZER: THE BAS SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION PER DESIGN AND AS DETERMINED BY THE TEST AND BALANCE CONTRACTOR WHENEVER OCCUPIED.
   1. THE ECONOMIZER SHALL BE ENABLED WHENEVER:
      a. OUTSIDE AIR TEMPERATURE IS LESS THAN 72°F.
      b. OR, THE OUTSIDE AIR ENTHALPY IS LESS THAN 22 BTU/LB.
      c. AND, THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
      d. AND, THE SUPPLY FAN STATUS IS ON.
   2. THE ECONOMIZER SHALL CLOSE WHENEVER:
      a. MIXED AIR TEMPERATURE DROPS BELOW THE SUPPLY AIR TEMPERATURE REQUIRED TO MEET THE COOLING DEMAND.
      b. OR, THE FREEZESTAT (IF PRESENT) IS ENERGIZED.
      c. OR, ON LOSS OF SUPPLY FAN STATUS.

M. RETURN FAN: THE RETURN FAN SHALL RUN WHENEVER THE SUPPLY FAN RUNS.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. RETURN FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      b. RETURN FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      c. RETURN FAN VFD FAULT.

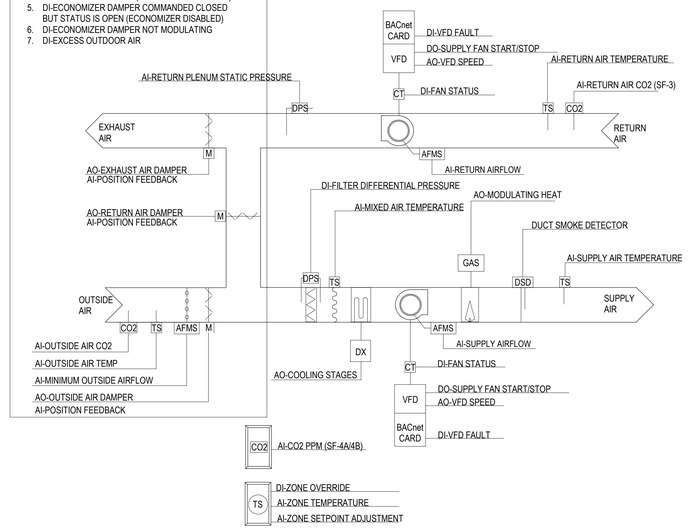
N. RETURN FAN SPEED CONTROL: THE BAS SHALL MODULATE THE RETURN FAN SPEED BY THE GREATER OF THE TWO FOLLOWING CONTROL LOOPS:
   1. THE SUPPLY FAN VFD SIGNAL SHALL BE UTILIZED FOR THE PRIMARY CONTROL LOOP TO DETERMINE THE CFM SETPOINT OF THE RETURN FANS SENSED BY THE VFD SPEED SIGNAL. THE CFM SETPOINT SHALL BE USED TO ESTABLISH A LINEAR RELATIONSHIP FROM THE SIGNAL ESTABLISHED DURING THE AIR BALANCE BASED ON THE MAXIMUM MEASURED SUPPLY CFM LESS ANY CFM REQUIRED TO MAINTAIN THE BUILDING AT +0.05" WC, AND.
   2. THE SECONDARY CONTROL LOOP SHALL BE BASED ON MAINTAINING A POSITIVE PRESSURE IN THE EXHAUST AIR PLENUM BY MODULATING THE EXHAUST AIR DAMPERS TO MAINTAIN AN EXHAUST PLENUM PRESSURE OF +0.02" WC MINIMUM TO 0.07" WC MAXIMUM.
   3. THE FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY VFD MANUFACTURER.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A) HIGH RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      B) LOW RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE DROPS TO 0.25 INCHES H2O.

O. CARBON DIOXIDE (CO2) CONTROL (SF-3):
   1. THE BAS SHALL MEASURE THE RETURN CO2 LEVEL AND OUTDOOR AMBIENT CO2 LEVEL.
   2. WHEN IN THE OCCUPIED MODE, THE BAS SHALL MEASURE THE RETURN CO2 LEVELS AND MODULATE THE OUTSIDE AIR DAMPERS OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT NO GREATER THAN OUTSIDE AMBIENT CO2 CONCENTRATION PLUS 400 PPM (APPROXIMATELY 800 PPM).
   3. THE MIXED AIR TEMPERATURE SHALL NOT EXCEED 80°F WHEN IN CO2 CONTROL.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH RETURN CARBON DIOXIDE CONCENTRATION: IF THE RETURN AIR CO2 CONCENTRATION IS GREATER THAN 800 PPM WHEN IN THE OCCUPIED MODE.

O. CARBON DIOXIDE (CO2) CONTROL (SF-4A/4B):
   1. THE BAS SHALL MEASURE THE ZONE CO2 LEVEL AND OUTDOOR AMBIENT CO2 LEVEL.
   2. WHEN IN THE OCCUPIED MODE, THE BAS SHALL MEASURE THE ZONE CO2 LEVELS AND MODULATE THE OUTSIDE AIR DAMPERS OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT NO GREATER THAN OUTSIDE AMBIENT CO2 CONCENTRATION PLUS 600 PPM (APPROXIMATELY 1000 PPM).
   3. THE MIXED AIR TEMPERATURE SHALL NOT EXCEED 80°F WHEN IN CO2 CONTROL.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE ZONE AIR CO2 CONCENTRATION IS GREATER THAN 800 PPM WHEN IN THE OCCUPIED MODE.

Q. ECONOMIZER FAULT DETECTION AND DIAGNOSTICS (FDD)
   1. FDD IS REQUIRED TO ON ALL AIR-COOLED UNITARY DIRECT-EXPANSION UNITS WITH AHRI CAPACITY GREATER THAN 54,000 BTUH AND EQUIPPED WITH AIR ECONOMIZER.
   2. THE FDD BAS SHALL HAVE A VISUAL DISPLAY WITH INPUT AND OUTPUT CAPABILITY.
   3. TEMPERATURE SENSORS SHALL MONITOR:
      a. OUTSIDE AIR TEMPERATURE
      b. SUPPLY AIR TEMPERATURE
      c. RETURN AIR TEMPERATURE
   4. BAS SHALL PROVIDE STATUS FOR:
      a. FREE COOLING AVAILABILITY
      b. ECONOMIZER ENABLED
      c. COMPRESSOR ENABLED
      d. HEATING ENABLED
      e. MIXED AIR LOW LIMIT CYCLE ACTIVE
   5. BAS SHALL BE CAPABLE OF MANUALLY INITIATING THE FOLLOWING MODES FOR INDEPENDENT TESTING AND VERIFICATION:
      a. COMPRESSOR OPERATION
      b. ECONOMIZERS
      c. FANS
      d. HEATING SYSTEM
   6. FAULTS SHALL BE ANNUNCIATED LOCALLY AT ZONE THERMOSTATS OR AT BUILDING AUTOMATION SYSTEM.

ECONOMIZER FAULT DETECTION AND DIAGNOSTICS (FDD) POINTS:
1. DI-SUPPLY AIR TEMPERATURE SENSOR FAILURE
2. DI-RETURN AIR TEMPERATURE SENSOR FAILURE
3. DI-OUTSIDE AIR TEMPERATURE SENSOR FAILURE
4. DI-ECONOMIZER DAMPER COMMANDED OPEN BUT STATUS IS CLOSED (ECONOMIZER ENABLED)
5. DI-ECONOMIZER DAMPER COMMANDED CLOSED BUT STATUS IS OPEN (ECONOMIZER DISABLED)
6. DI-ECONOMIZER DAMPER NOT MODULATING
7. DI-EXCESS OUTDOOR AIR



NOTES:
1. REFER TO PLANS AND EQUIPMENT SCHEDULE FOR LOCATIONS AND SYSTEM COMPONENTS.
2. PROVIDE OVERRIDE BUTTON AT EACH TEMPERATURE SENSOR AS AN OVERRIDE TO ENERGIZE HVAC SYSTEM AFTER NORMAL OCCUPIED HOURS.
3. SMOKE DETECTOR: FURNISHED BY DIV 28, INSTALLED BY DIV 23. HARDWIRE SMOKE DETECTOR TO EMERGENCY STOP TERMINALS ON SUPPLY AND RETURN FAN BY DIV 26/28.

1 SF-3 VAV DX RETURN FAN - CONTROL

SF 3 | SF 4A | SF 4B

SCALE: NONE

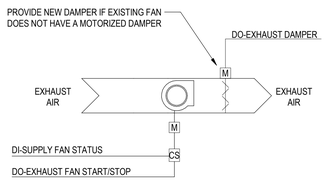
(E) EXHAUST FAN:
*AMEND EXISTING CONTROLS/PROVIDE NEW AS REQUIRED TO MEET FOLLOWING:

A. FEATURES:
   1. EXHAUST FAN
   2. CONSTANT VOLUME
   3. MOTORIZED DAMPERS - PROVIDE IF NOT EXISTING

B. RUN CONDITIONS-SCHEDULED:
   1. FAN SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES
      A. OCCUPIED MODE

C. EXHAUST AIR DAMPER CONTROL:
   1. THE EXHAUST AIR DAMPER SHALL OPEN ANYTME THE FAN RUNS AND CLOSE ANYTIME THE FAN STOPS.

D. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. FAN STATUS:
      a. FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      b. FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.



NOTES:
1. REFER TO PLANS FOR DUCTWORK ARRANGEMENT.

2 EXHAUST FAN - CONTROL

SF 1 | SF 2 | SF 3 | SF 4

SCALE: NONE

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bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
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STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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GLUMAC
900 SW 5th Ave, Suite 1600
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T (503) 227 5280

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15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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#	REVISIONS	DATE

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LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER — OREGON — 81596PE — Steve Williams — RENEWAL: JANUARY 6, 2023 — STEVEN A. NOLVAMER

CONTROLS AND SEQUENCE OF OPERATION

PERMIT SET

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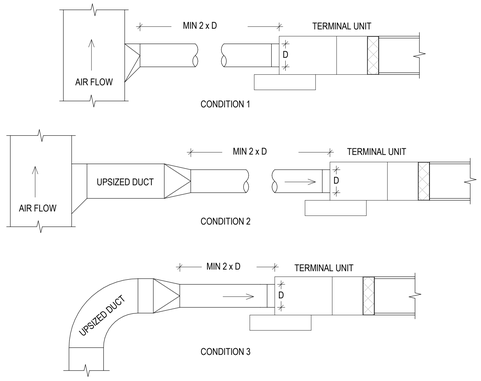
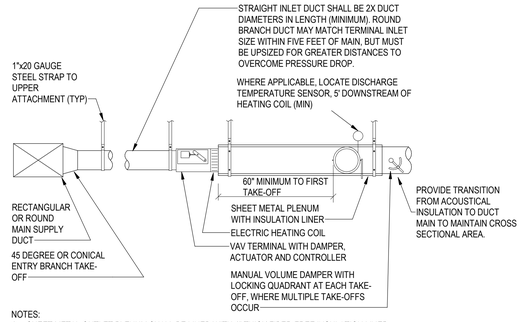


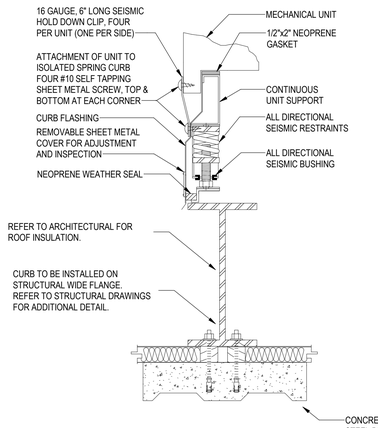
NOTES:
1. MINIMUM STRAIGHT LENGTH TO TERMINAL UNIT INLET OF SHALL NOT BE LESS THAN 2X ENTRANCE DUCT DIAMETER. LONGER STRAIGHT INLET LENGTHS ARE PREFERRED WHERE SPACE ALLOWS.
2. INLET DUCT SIZE MAY MATCH INLET TERMINAL SIZE FOR LENGTHS UP 5' WITH VELOCITY UP TO 2500 FPM AT PEAK FLOW, OTHERWISE DUCT SIZING SHALL BE LIMITED TO AIR VELOCITIES NO GREATER THAN 1750 FPM AT PEAK FLOW.
3. UPSIZE INLET DUCT SIZES AS REQUIRED BY SYSTEM PRESSURE LIMITS AND NOISE CRITERIA.

4 TERMINAL UNIT DUCT SIZING
SCALE: NONE



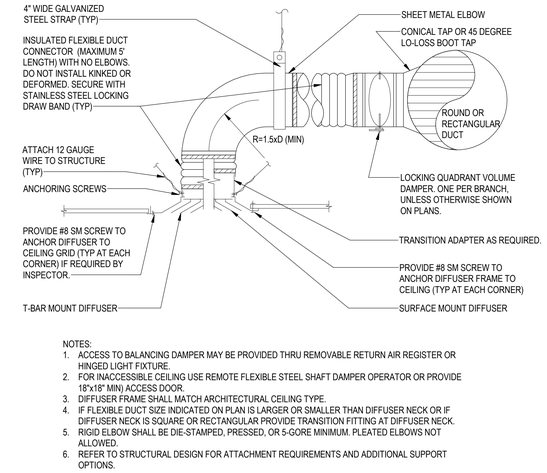
NOTES:
1. SHEET METAL OUTLET PLENUM SHALL BE LINED WITH 1" THICK FIBER-FREE INSULATION LINER.
2. MAINTAIN ADEQUATE CLEARANCE TO EASILY ACCESS AND MAINTAIN DAMPERS AND CONTROLS.
3. UNLESS OTHERWISE NOTED ON THE DRAWINGS, INSIDE CLEAR DIMENSIONS SHALL BE 2" HIGHER THAN TERMINAL UNIT OUTLET HEIGHT AND 4" WIDER THAN TERMINAL UNIT OUTLET WIDTH TO MINIMIZE NOISE TRANSMISSION TO DIFFUSERS.

3 VAV TERMINAL W ELECTRIC REHEAT COIL
SCALE: NONE



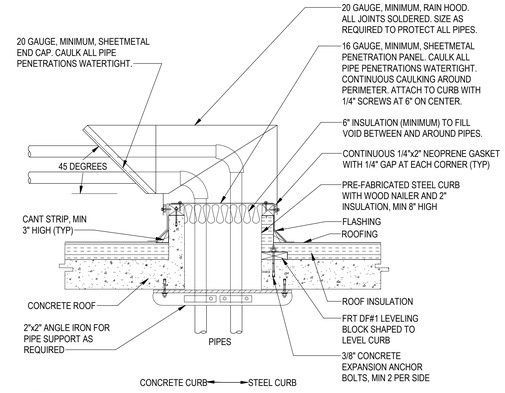
NOTES:
1. BASED ON MASON #RSC SPRING VIBRATION ISOLATION CURB WITH 1" DEFLECTION SPRINGS.

8 CURB DETAIL - MASON RSC
SCALE: NONE



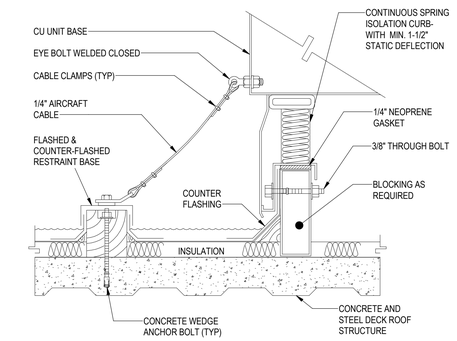
NOTES:
1. ACCESS TO BALANCING DAMPER MAY BE PROVIDED THRU REMOVABLE RETURN AIR REGISTER OR HINGED LIGHT FIXTURE.
2. FOR INACCESSIBLE CEILING USE REMOTE FLEXIBLE STEEL SHAFT DAMPER OPERATOR OR PROVIDE 18"x18" MIN) ACCESS DOOR.
3. DIFFUSER FRAME SHALL MATCH ARCHITECTURAL CEILING TYPE.
4. IF FLEXIBLE DUCT SIZE INDICATED ON PLAN IS LARGER OR SMALLER THAN DIFFUSER NECK OR IF DIFFUSER NECK IS SQUARE OR RECTANGULAR PROVIDE TRANSITION FITTING AT DIFFUSER NECK.
5. RIGID ELBOW SHALL BE DIE-STAMPED, PRESSED, OR 5-GORE MINIMUM. PLEATED ELBOWS NOT ALLOWED.
6. REFER TO STRUCTURAL DESIGN FOR ATTACHMENT REQUIREMENTS AND ADDITIONAL SUPPORT OPTIONS.

5 CEILING DIFFUSER MOUNTING-RIGID
SCALE: NONE



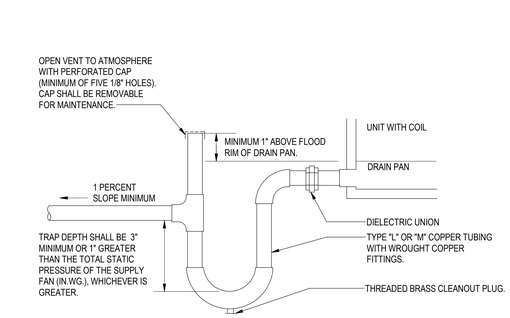
NOTES:
1. COORDINATE ROOF OPENING, BLOCKING, CURBING, CANT STRIP & FLASHING WITH ROOFING INSTALLER. ROOF PENETRATIONS SHALL NOT VOID ROOF WARRANTY.
2. PROVIDE PACKING AND SEALING MATERIALS AS REQUIRED BY ROOF RATING.
3. ALL SIZING, LOCATION, AND ANCHORING SHALL BE COORDINATED WITH STRUCTURAL DESIGN.

2 PIPE PENETRATION-CONCRETE ROOF
SCALE: NONE



NOTES:
1. SEISMIC RESTRAINT ASSEMBLY SHALL BE INSTALLED DIAGONALLY AT EACH CORNER FOR SMALL UNITS OR ON ALL SIDES OF LARGE UNIT, THREE ASSEMBLIES AT LONG SIDES AND ONE AT SHORT SIDES.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.
3. ALL ANCHORING AND SEISMIC RESTRAINTS SHALL BE REVIEWED BY STRUCTURAL ENGINEER.
4. FLASHING AND COUNTER FLASHING SHALL BE COORDINATED W/ ROOFING CONTRACTOR. THE WORK SHALL NOT VOID THE ROOF WARRANTY.
5. ROOFTOP EQUIPMENT SHALL BE INSTALLED ON ROOF IN THE LOCATION WITH ADEQUATE STRENGTH TO SAFELY SUPPORT THE ENTIRE WEIGHT OF THE UNIT AND SERVICE PERSONNEL. CARE SHALL BE TAKEN NOT TO DAMAGE THE ROOF, COORDINATE WITH STRUCTURAL ENGINEER.

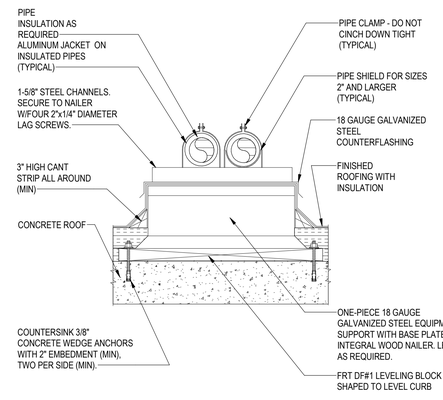
7 CURB DETAIL-CONC SEISMIC
SCALE: NONE



NOTES:
1. CONDENSATE PIPE TERMINATION SHALL BE LOCATED A MINIMUM OF 1" ABOVE THE FLOOD RIM OF AN APPROVED TRAPPED RECEPTOR, LANDSCAPING AREA OR OTHER LOCATION AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
2. ALL INTERIOR CONDENSATE DRAIN PIPING ABOVE CEILINGS SHALL BE INSULATED.
3. PROVIDE PIPE SUPPORTS AS REQUIRED TO MAINTAIN MINIMUM 1% SLOPE.
4. INSTALL TRAP PARALLEL TO UNIT, IF POSSIBLE.
5. MINIMUM CONDENSATE PIPE SIZES SHALL BE PER THE FOLLOWING TABLE UNLESS LARGER SIZE IS SHOWN ON PLANS OR AS REQUIRED BY AUTHORITY HAVING JURISDICTION AND/OR LOCAL BUILDING CODE REQUIREMENTS.

CAPACITY	SIZE
UP TO 20 TONS	3/4"
21 TO 40 TONS	1"
41 TO 90 TONS	1-1/4"
91 TO 125 TONS	1-1/2"

6 AHU CONDENSATE TRAP
SCALE: NONE



NOTES:
1. COORDINATE ANCHORAGE REQUIREMENTS WITH STRUCTURAL DESIGN AND ROOFING SYSTEM.
2. LENGTH AND HEIGHT AS REQUIRED TO ACCOMMODATE PIPES AND ROOFING SYSTEM.

1 PIPE SUPPORT-CONCRETE ROOF
SCALE: NONE

bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
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MECHANICAL ENGINEER
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Portland, OR 97204
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CORVALLIS, OR 97331

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REGISTERED PROFESSIONAL ENGINEER
31596PE
Steve Nellemann
OREGON
JANUARY 8, 2013
STEVEN A. NOLLKAMPER

PERMIT SET

MECHANICAL DETAILS

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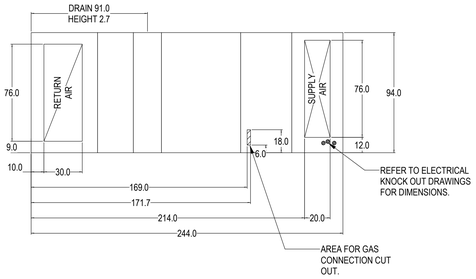
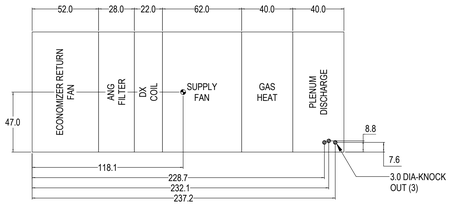
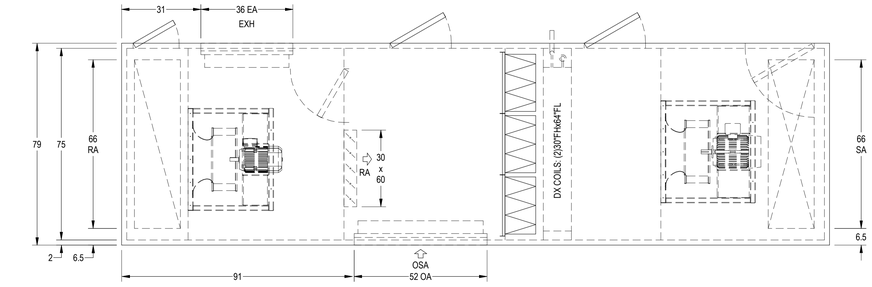


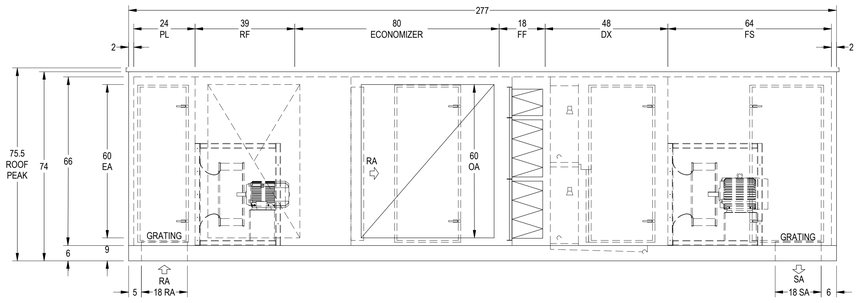


NOTE:
EACH AIR HANDLING UNIT TO HAVE CUSTOM PLENUM CURB TO CONNECT NEW RETURN AIR INLET TO EXISTING RETURN DUCT RISERS. PLENUM CURB SHALL BE SEALED AIR TIGHT BETWEEN THE UNIT CONNECTION AND THE EXISTING ROOF PENETRATION.

4 SF-4A,B
SCALE: NONE



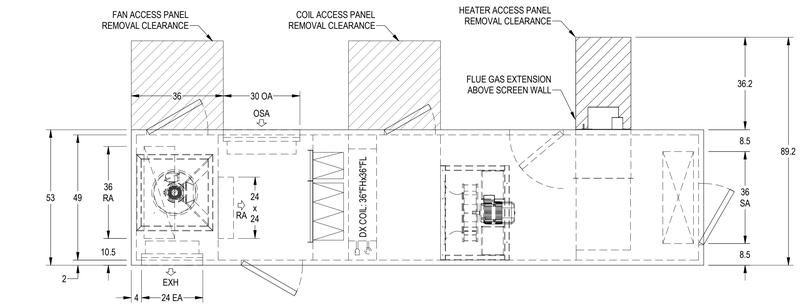
PLAN VIEW



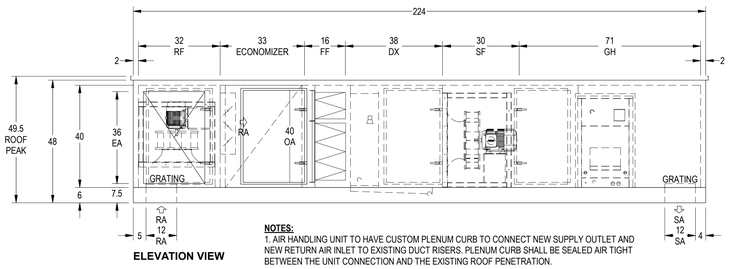
ELEVATION VIEW

NOTE:
EACH AIR HANDLING UNIT TO HAVE CUSTOM PLENUM CURB TO CONNECT NEW SUPPLY OUTLET AND NEW RETURN AIR INLET TO EXISTING DUCT RISERS. PLENUM CURB SHALL BE SEALED AIR TIGHT BETWEEN THE UNIT CONNECTION AND THE EXISTING ROOF PENETRATION.

2 SF-2
SCALE: NONE



PLAN VIEW

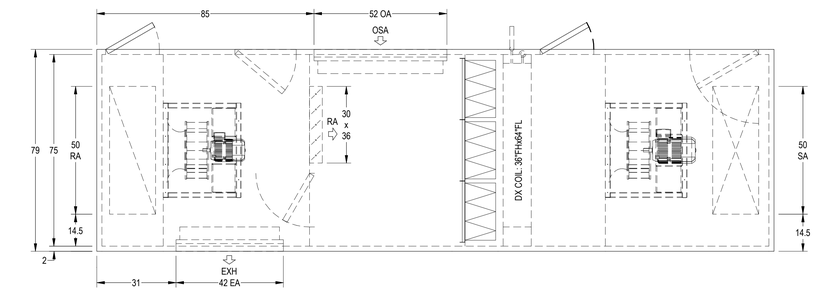


ELEVATION VIEW

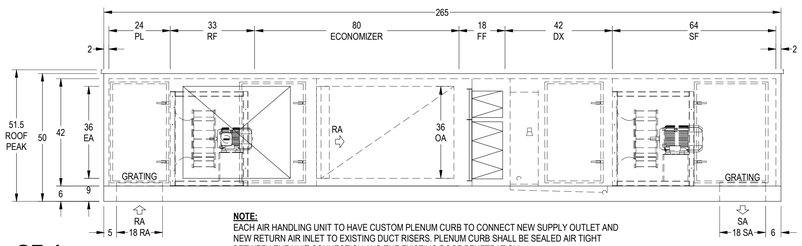
NOTES:
1. AIR HANDLING UNIT TO HAVE CUSTOM PLENUM CURB TO CONNECT NEW SUPPLY OUTLET AND NEW RETURN AIR INLET TO EXISTING DUCT RISERS. PLENUM CURB SHALL BE SEALED AIR TIGHT BETWEEN THE UNIT CONNECTION AND THE EXISTING ROOF PENETRATION.

2. FIELD MOUNT VFDS AND DISCONNECTS TO MAINTAIN NEC CLEAREANCES.

3 SF-3
SCALE: NONE



PLAN VIEW



ELEVATION VIEW

NOTE:
EACH AIR HANDLING UNIT TO HAVE CUSTOM PLENUM CURB TO CONNECT NEW SUPPLY OUTLET AND NEW RETURN AIR INLET TO EXISTING DUCT RISERS. PLENUM CURB SHALL BE SEALED AIR TIGHT BETWEEN THE UNIT CONNECTION AND THE EXISTING ROOF PENETRATION.

1 SF-1
SCALE: NONE

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

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900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
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T (503) 227 5280

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FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area
EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER
81596PE
OREGON
JANUARY 8, 2016
STEVEN A. NOLLKAMPER

MECHANICAL DETAILS

M9.02

PERMIT SET

PLUMBING BASIS OF DESIGN

A. LASELLS STEWART CENTER CONSISTS OF TWO AUDITORIUM SPACES AND SEVERAL LARGE MEETING SPACES, TOTALING APPROXIMATELY 43,000 SQUARE FEET.
B. THE DESIGN INCLUDES THE FOLLOWING NOTABLE FEATURES, BUT IS NOT LIMITED TO THIS SCOPE. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL CONTRACT DOCUMENTS AND COORDINATING WITH ALL DISCIPLINES.
   1. EXISTING ROOF DRAINS SHALL BE REPLACED WITH NEW ROOF DRAINS FOR A COMPLETE AND OPERATIONAL SYSTEM. EXISTING INTERIOR STORM PIPING SHALL REMAIN AND CONNECTIONS TO NEW ROOF DRAIN OUTLET PROVIDED.
   2. EXISTING VENT PIPING SHALL BE EXTENDED TO MEET CODE REQUIREMENTS AT NEW ROOF ELEVATION.
   3. EXISTING GAS PIPING SHALL BE DEMOLISHED ON ROOF FOR ROOF REPLACEMENT. NEW GAS PIPING SHALL BE CONNECTED AND SERVE THE NEW OR EXISTING UNITS THAT ARE TO BE REPLACED OR REMAIN.
   4. FIRE PROTECTION SYSTEM SHALL BE MODIFIED FOR INTERIOR AND EXTERIOR SCOPE OF WORK AT CEILING AND FACADE. REMOVE ALL EXISTING EXTERIOR FIRE SPRINKLERS AS NOT REQUIRED BY CODE FOR NEW MWP CLADDING.
D. NEW ROOF POST HYDRANTS SHALL BE LOCATED ON ROOF NEAR MECHANICAL EQUIPMENT. COLD WATER SHALL BE EXTENDED FROM NEAREST EXISTING COLD WATER MAIN UP TO ROOF TO SERVE POST HYDRANTS. SHUT OFF VALVE SHALL BE ACCESSIBLE AND PROVIDED AT CONNECTION TO MAIN.
C. CODES AND STANDARDS (LATEST EDITIONS UNLESS OTHERWISE REQUIRED BY AHJ)
   1. AMERICANS WITH DISABILITIES ACT (ADA)
   2. OREGON BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AHJ):
      a. 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC) BASED ON THE 2018 INTERNATIONAL BUILDING CODE WITH STATE AMENDMENTS.
      b. 2021 OREGON PLUMBING SPECIALTY CODE (OPSC) BASED ON THE 2021 UNIFORM PLUMBING CODE WITH STATE AMENDMENTS.
      c. 2019 OREGON MECHANICAL SPECIALTY CODE (OMSC) BASED ON THE 2018 INTERNATIONAL MECHANICAL CODE AND THE 2018 INTERNATIONAL FUEL GAS CODE (IMC).
D. OUTDOOR DESIGN CONDITIONS (FOR INSULATION AND GAS FIRING CRITERIA):
   1. LOCATION: CORVALLIS, OREGON
   2. WINTER: 24.7°F.
   3. ELEVATION: 235 FEET.
E. STORM DRAIN:
   1. RAINFALL INTENSITY: 1.1 INCHES/HOUR (PER LOCAL ORDINANCE).
   2. REFER TO PLANS FOR AREA SERVED BY ROOF DRAINS.
   3. ALL OVERFLOW STORM WATER WILL EXIT THROUGH SCUPPERS, PROVIDED BY ARCHITECT.
F. NATURAL GAS SERVICE:
   1. GAS PROVIDER: NORTHWEST NATURAL
   2. DELIVERY PRESSURE: 2 PSI
   3. MAXIMUM DEMAND: 1680 CUBIC FEET PER HOUR.
   4. REFER TO PLANS FOR NATURAL GAS SIZING CALCULATIONS.
G. SEISMIC:
   1. ANCHORAGE AND RESTRAINTS MUST BE COORDINATED WITH STRUCTURAL ENGINEER AND AUTHORITY HAVING JURISDICTION.

GENERAL NOTES

A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE PLUMBING SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
B. RUN ALL SOIL WASTE AND VENT PIPING WITH 2% MINIMUM GRADE UNLESS OTHERWISE NOTED (EDIT SLOPE TO SUIT PROJECT REQUIREMENTS). HORIZONTAL VENT PIPING SHALL BE GRADED TO DRIP BACK TO THE SOIL OR WASTE PIPE BY GRAVITY.
C. ELEVATIONS AS SHOWN ON THE DRAWINGS ARE TO THE CENTERLINE OF ALL PRESSURE PIPING AND TO THE INVERT OF ALL GRAVITY PIPING.
D. PROVIDE SHUTOFF VALVES IN ALL DOMESTIC WATER PIPING SYSTEM BRANCHES IN WHICH BRANCH PIPING SERVES TWO OR MORE FIXTURES.
E. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF SLAB, WITH SPACE FOR INSULATION IF REQUIRED.
F. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
G. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
H. ALL PIPING SHALL CLEAR DOORS AND WINDOWS.
I. UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES, AND IN LONG PIPING RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.
J. ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
K. ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
L. UNLESS OTHERWISE NOTED, DRAINS SHALL BE INSTALLED AT THE LOW POINT OF ROOFS, AREAWAYS, FLOORS, ETC.
M. PROVIDE CLEANOUTS IN SANITARY AND STORM DRAINAGE SYSTEMS AT ENDS OF RUNS, AT CHANGES IN DIRECTION, NEAR THE BASE OF STACKS, EVERY 50 FEET IN HORIZONTAL RUNS AND ELSEWHERE AS INDICATED.
N. ALL CLEANOUTS SHALL BE FULL SIZE OF PIPE FOR PIPE SIZES 6 INCHES AND SMALLER AND SHALL BE 6 INCHES FOR PIPE SIZES LARGER THAN 6 INCHES.
O. ALL VALVES SHALL BE INSTALLED SO THAT VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
P. ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
Q. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.

ABBREVIATIONS

ABV	ABOVE
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AP	ACCESS PANEL
ARCH	ARCHITECT
ASR	AUTO FIRE SPRINKLER RISER
BAS	BUILDING AUTOMATION SYSTEM
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BWV	BACKWATER VALVE
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN
CR	STEAM CONDENSATE RETURN
CFF	CAP FOR FUTURE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
CWFU	COLD WATER FIXTURE UNIT
DN	DOWN
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DDCVA	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
DFU	DRAINAGE FIXTURE UNIT
DIA	DIAMETER
DSN	DOWNSPOUT NOZZLE
DWG	DRAWING
DWV	DRAINAGE WASTE AND VENT
E	EXISTING
ELEC	ELECTRICAL
FA	FLOW ALARM
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEANOUT
FDV	FIRE DEPARTMENT VALVE
FDVC	FIRE DEPARTMENT VALVE CABINET
FFA/FFB	FROM FLOOR ABOVE/BELOW
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FHV	FIRE HOSE VALVE
FIN	FINISHED
FO	FUEL OIL
FPS	FEET PER SECOND
FT	FEET
FT	FLUSH TANK
FU	FIXTURE UNIT
FV	FLUSH VALVE
G	GAS
GAL	GALLONS
GC	GAS COCK
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HD	HUB DRAIN
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER RECIRCULATION
HWFU	HOT WATER FIXTURE UNIT
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
IE	INVERT ELEVATION
IRR	IRRIGATION
LAV	LAVATORY
LBS	POUNDS (UNIT OF FORCE)
MAX	MAXIMUM
MBH	THOUSANDS BTU/HR
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MH	MANHOLE
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN OR NUMBER
NIC	NOT IN CONTRACT
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OW	OIL WASTE
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
RI&C	ROUGH IN AND CONNECT
R	RELOCATE, RISE, RISER
RP	REDUCED-PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
RPM	REVOLUTIONS PER MINUTE
SD	STORM DRAIN
SF	SQUARE FEET
SHWR	SOLAR HOT WATER RETURN
SHWS	SOLAR HOT WATER SUPPLY
SOV	SHUT-OFF VALVE
SPK	SPRINKLER
SS	SANITARY SEWER
TFA/TFB	TO FLOOR ABOVE/BELOW
TP	TRAP PRIMER
TS	TAMPER SWITCH
TT	TEST TEE
TYP	TYPICAL
U/UR	URINAL
VB	VACUUM BREAKER
V	VENT
VTR	VENT THROUGH ROOF
W	WASTE
WC	WATER CLOSET
WHA	WATER HAMMER ARRESTOR
WCO	WALL CLEANOUT
W/	WITH
YB	YARD BOX

SYMBOL	DESCRIPTION
	TRAP PRIMER
	BALL VALVE
	BUTTERFLY VALVE
TS	GATE VALVE
	BALANCING VALVE
	SHUT OFF VALVE IN CONCRETE YARD BOX
	ANGLE GATE VALVE
	SOLENOID VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	MIXING VALVE
	PLUG VALVE / GAS COCK
	RELIEF VALVE
	VACUUM RELIEF VALVE
	PRESSURE & TEMPERATURE RELIEF VALVE
	AUTOMATIC AIR VENT
	BACKWATER VALVE
	REDUCED - PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY (RP)
	UNION
	STRAINER
	STRAINER WITH BLOW OFF HOSE BIBB
	PIPE ANCHOR
	PIPE ALIGNMENT GUIDE
	EXPANSION JOINT
	FLEXIBLE CONNECTOR
	CAP OR PLUG
	BLIND FLANGE
	CONCENTRIC REDUCER
	AQUASTAT
WHA	WATER HAMMER ARRESTOR
PG	PRESSURE GAUGE WITH COCK
T	THERMOMETER
CO/WCO	CLEANOUT / WALL CLEANOUT
FCO/COTG	FLOOR CLEANOUT / CLEANOUT TO GRADE
YCO/COTG	YARD CLEANOUT / CLEANOUT TO GRADE
TT	TEST TEE
WH	WALL HYDRANT
HB	HOSE BIBB
	ROOF HYDRANT
YH	YARD HYDRANT
	THRUST BLOCK
FD	FLOOR DRAIN
FS	FLOOR SINK W/ GRATE AS SHOWN
	HUB DRAIN
	ROOF RECEPTOR
	STORM DRAIN
	OVERFLOW DRAIN
	DECK DRAIN, PLANTER DRAIN
	DOWN SPOUT NOZZLE
M	SUB-METER

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS ARE APPLICABLE TO THIS PROJECT. REFER TO DETAILS AND NOTES FOR MOUNTING HEIGHTS.

SYMBOL	DESCRIPTION
1% SLOPE	DIRECTION OF SLOPE
	DIRECTION OF FLOW
	PIPE UP OR UP & DN
	PIPE DOWN
	PIPE DROP
	TOP CONNECTION - BRANCH LINE
	BOTTOM CONNECTION - BRANCH LINE
	COLD WATER
	HOT WATER
	HOT WATER RECIRCULATION
140	HOT WATER (140°F)
	VENT
	PIPING BELOW GRADE OR FLOOR
	PIPING ABOVE GRADE OR FLOOR
SS	SANITARY SEWER, WASTE OR SOIL
SD	STORM DRAIN, RAINWATER DRAIN PIPING
OD	OVERFLOW STORM DRAIN PIPING
PD	PUMPED DISCHARGE
D	DRAIN LINE
IW	INDIRECT WASTE
GW	GREASE WASTE
G	NATURAL GAS (7"W.C.)
MG	MEDIUM PRESSURE GAS (2 PSIG TO 5 PSIG)
LG	LOW PRESSURE GAS
CA	COMPRESSED AIR
(E)	EXISTING PIPE
TW	TEMPERED WATER
TWR	TEMPERED WATER RETURN
6"	PIPE SIZE (DIAMETER IN INCHES)
(E)	EXISTING WORK TO REMAIN
(D)	EXISTING WORK TO BE REMOVED
(F)	FUTURE WORK
(ER)	EXISTING RELOCATED
℄	CENTER LINE
	POINT OF CONNECTION OR POINT OF DISCONNECTION
SS	SANITARY SEWER STACK
V	VENT STACKS
CW	COLD WATER RISER
HW	HOT WATER RISER
HWC	HOT WATER RECIRC. RISER
G	GAS RISER
SD	STORM DRAIN RISER
OD	OVERFLOW DRAIN RISER
CA	COMPRESSED AIR RISER
XX X	PLUMBING EQUIPMENT
XXX	MISCELLANEOUS EQUIPMENT
#	KEYED NOTE
1 P2	DETAIL NO. SHEET NO.
#	POUNDS OR NUMBER

FIRE PROTECTION

SYMBOL	DESCRIPTION
F	FIRE MAIN
AS	AUTOMATIC WET SPRINKLER
CSP	COMBINATION STAND PIPE
DSP	DRY STAND PIPE
	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
	OS & Y GATE VALVE (OUTSIDE SCREW & YOKE GATE VALVE)
TS TS	OS & Y GATE VALVE WITH TAMPER SWITCH
FDC	FIRE DEPARTMENT CONNECTION
	AUTO FIRE SPRINKLER RISER
FDV	FIRE DEPARTMENT VALVE
FO	FIRE DEPARTMENT VALVE CABINET
	FIRE SPRINKLER FLOOR CONTROL VALVE
	SIEMESE FIRE DEPT. CONN.
	ROOF MANIFOLD
	FIRE HOSE VALVE
	FIRE ALARM BELL
PS	PRESSURE SWITCH
FA	FLOW ALARM
FS	FLOW SWITCH
AS	AUTOMATIC WET SPRINKLER RISER
ASD	AUTOMATIC SPRINKLER DRAIN
WSP	WET STANDPIPE RISER

PLUMBING DRAWING LIST

SHEET NUMBER	SHEET NAME	100%DD	PERMIT SET
P0.00	PLUMBING LEGEND AND ABBREVIATIONS	X	X
PD1.01	DEMO - MAIN LEVEL PLAN - PLUMBING	X	X
PD1.02	DEMO - ROOF PLAN - PLUMBING	X	X
P2.01	MAIN LEVEL PLAN - PLUMBING	X	X
P2.02	ROOF PLAN - LOWER LEVEL - PLUMBING	X	X
P2.03	ROOF PLAN - UPPER LEVEL - PLUMBING	X	X
P9.01	PLUMBING DETAILS AND SCHEDULES	X	X

PHASING

THE PROJECT PHASING AND ITS IMPACTS TO THE CONSTRUCTION OF THE MECHANICAL, ELECTRICAL, PLUMBING, LIGHTING AND LOW VOLTAGE SYSTEMS SHALL BE WHOLLY OWNED BY THE CM/GC (CONSTRUCTION MANAGER/GENERAL CONTRACTOR) AND THEIR SUB-CONTRACTORS. TEMPORARY FIRE, WATER, SANITARY, STORM, POWER, LIGHTING AND CONDITIONING SHALL BE COORDINATED IN CONJUNCTION WITH FINAL DIRECTION FROM THE OWNER, BASED ON THE OWNER'S NEEDS (SAFETY, FUNCTIONALITY, ETC) DURING THE ACTIVE CONSTRUCTION SCHEDULE. A SEPARATE "PHASING PLAN" SHALL BE CREATED BY THE CM/GC AND INCLUDED AS A PROJECT DOCUMENT. ANY REFERENCES TO PHASING OR TEMPORARY SYSTEMS ON THESE DOCUMENTS ARE FOR REFERENCE ONLY AND ARE INTENDED TO AID IN GENERAL COORDINATION BETWEEN THE DESIGN TEAM AND THE CONTRACTING TEAM. NO SUCH REFERENCES TO PHASING OR TEMPORARY PROVISIONS ON THESE DOCUMENTS THAT ARE IN CONFLICT WITH THE DETAILS OF THE "PHASING PLAN" DOCUMENT SHALL BE USED AS LEVERAGE FOR CHANGE ORDERS DURING CONSTRUCTION.

DEFERRED SUBMITTALS

1. FIRE SPRINKLER DESIGN
2. SEISMIC BRACING FOR MECHANICAL AND PLUMBING SYSTEMS, INCLUDING EQUIPMENT, PIPING, AND DUCTWORK.
3. PIPE SYSTEM CERTIFICATION AND ANALYSIS:
   A. DESIGN: DESIGN AND CALCULATE REQUIREMENTS FOR THERMAL EXPANSION OF PIPING SYSTEMS AND FOR SELECTING AND DESIGNING EXPANSION JOINTS AND LOOPS.
   B. ANCHOR DETAILS: DETAIL FABRICATION OF EACH ANCHOR. SHOW DIMENSIONS AND METHODS OF ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE. SUPPORTS, ANCHORS, AND GUIDES SHALL BE DESIGNED FOR COMBINED GRAVITY, SEISMIC, PRESSURE, AND THERMAL LOADS.
   C. ALIGNMENTS GUIDE DETAILS: DETAIL FIELD ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE.
   D. SCHEDULE: EACH EXPANSION JOINT SHALL BE SCHEDULE WITH MANUFACTURER, TYPE, MATERIAL, SIZE, PRESSURE RATING, END CONNECTIONS, AND LOCATION.
   E. FULLY COORDINATE WITH DESIGN OF SEISMIC RESTRAINT AND ANCHORAGE.

*FOR ALL ITEMS LISTED ABOVE, THE PLUMBING AND/OR MECHANICAL CONTRACTOR SHALL PROVIDE A DELEGATED DESIGN SUBMITTAL WITH DOCUMENTATION AND ENGINEERING REQUIRED TO SATISFY REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ). THE DELEGATED DESIGN SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED TO ANALYSIS DATA SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
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81596PE
OREGON
STEVEN A. NOLLKAMPER

PERMIT SET

PLUMBING LEGEND AND ABBREVIATIONS

P0.00

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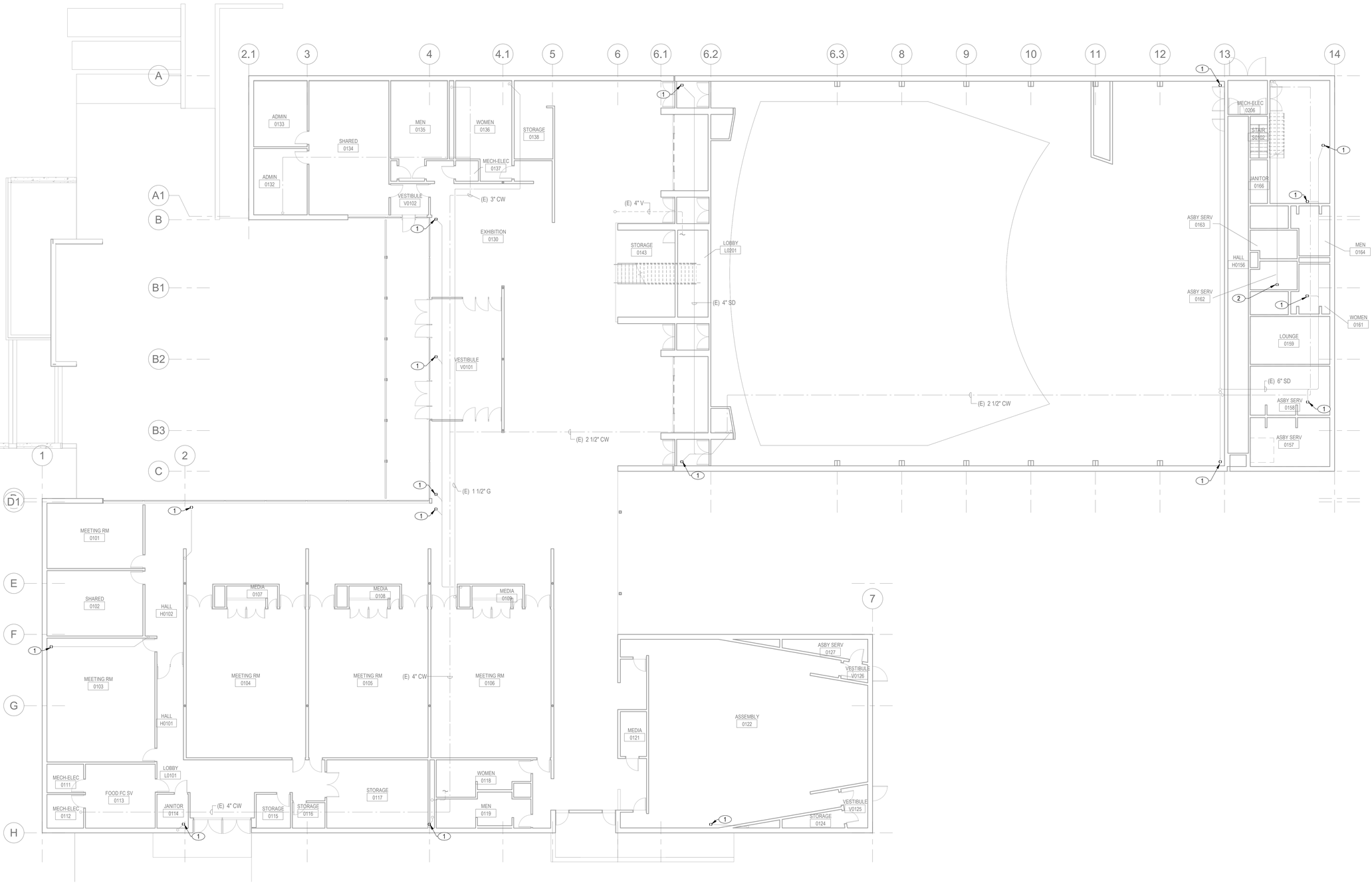
KEYED NOTES (#)

1 SCOPE SHALL CONSIST OF REMOVAL OF ROOF DRAIN ASSEMBLY. EXISTING INTERIOR STORM PIPING REMOVAL SHALL BE LIMITED. CONTRACTOR SHALL NOTIFY ARCHITECT AND ENGINEER OF ANY AMOUNT OF INTERIOR PIPING REMOVAL/REPLACEMENT AND PROVIDE PRICING PRIOR TO STARTING WORK.

2 DEMOLISH GAS PIPING UP TO EXISTING BOILER AND MAKE SAFE WITH INTENT TO CONNECT TO NEW HVAC EQUIPMENT.



1 MAIN LEVEL - FLOOR PLAN - PLUMBING DEMO

SCALE: 1" = 10'-0"

1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

NORTH

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
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REGISTERED PROFESSIONAL ENGINEER
81596PE
Steve Nollkamper
OREGON
JANUARY 8, 2015
STEVEN A. NOLLKAMPER

DEMO - MAIN LEVEL PLAN - PLUMBING

PD1.01

GENERAL NOTES

A. FIRE PROTECTION SYSTEM SHALL BE MODIFIED FOR INTERIOR AND EXTERIOR SCOPE OF WORK AT CEILING AND FACADE.

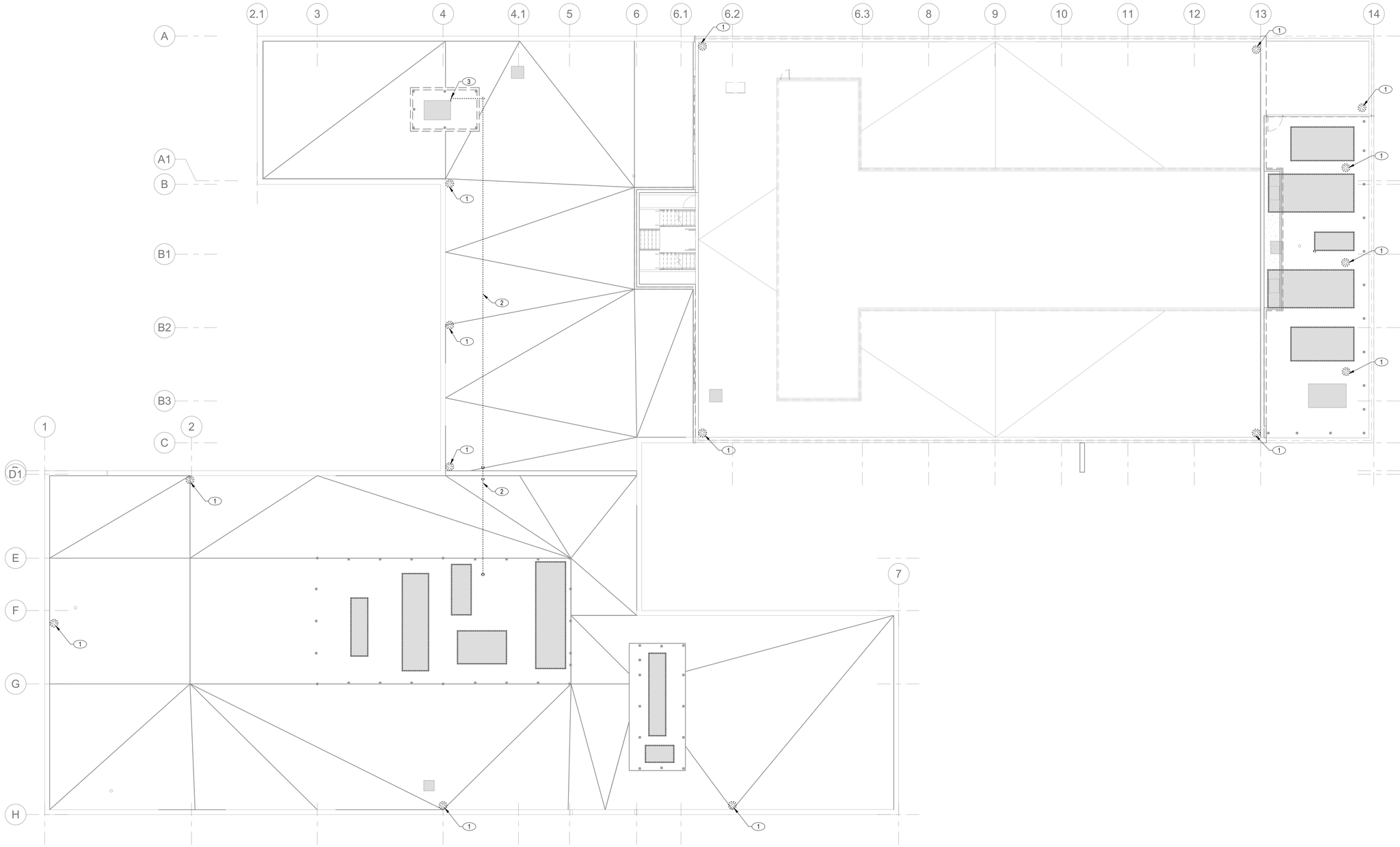
B. REMOVE ALL EXISTING EXTERIOR FIRE SPRINKLERS AS NOT REQUIRED BY CODE FOR NEW MWP CLADDING.

KEYED NOTES

1 DEMOLISH EXISTING ROOF DRAIN COMPLETE.

2 DEMOLISH EXISTING GAS PIPING AND SUPPORTS BACK TO ROOF PENETRATION IN PREPARATION FOR NEW ROOF.

3 EXISTING ROOF TOP UNIT TO REMAIN. REMOVE GAS PIPING AND ACCESSORIES AS REQUIRED FOR NEW ROOF.



1 ROOF PLAN - PLUMBING DEMO

SCALE: 1" = 10'-0"

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1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

NORTH

bassetti architects

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OREGON
81596PE
Steve Nollkamper
JANUARY 9, 2009
STEVEN A. NOLLKAMPER

DEMO - ROOF PLAN - PLUMBING

PD1.02

KEYED NOTES (#)

1 SCOPE SHALL CONSIST OF CONNECTING NEW ROOF DRAIN ASSEMBLY TO EXISTING INTERIOR STORM PIPING. CONTRACTOR SHALL NOTIFY ARCHITECT AND ENGINEER OF ANY AMOUNT OF INTERIOR PIPING REMOVAL/REPLACEMENT AND PROVIDE PRICING PRIOR TO STARTING WORK.

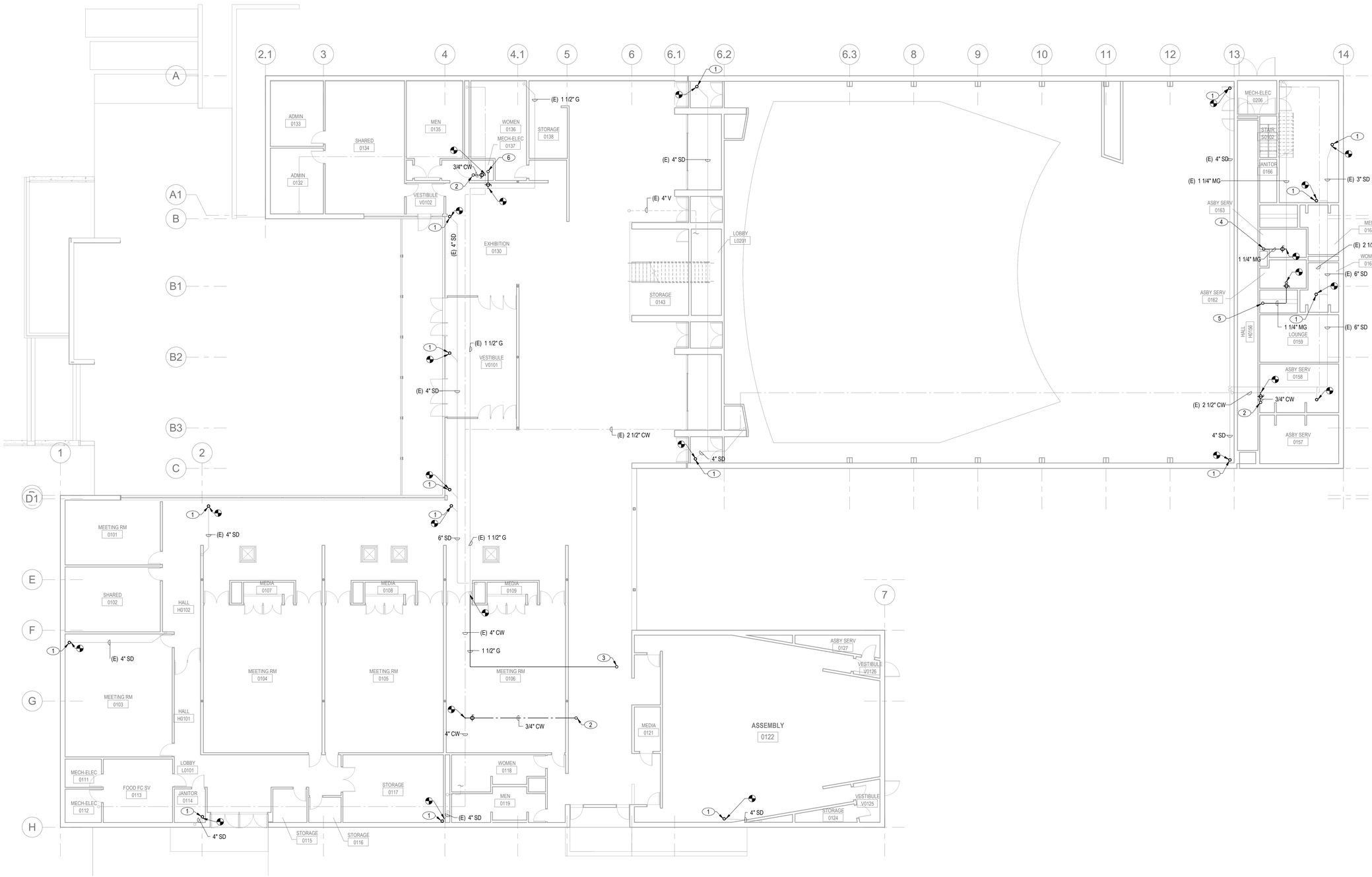
2 3/4" CW UP TO ROOF HYDRANT. MAINTAIN ACCESS TO SHUT OFF VALVE AND LABEL PER UNIVERSITY REQUIREMENTS.

3 1" NATURAL GAS UP TO SF-3.

4 1-1/4" NATURAL GAS PIPING UP TO SF-4A.

5 1-1/4" NATURAL GAS PIPING UP TO SF-4B.

6 3/4" NATURAL GAS PIPING UP TO EXISTING AIR HANDLING UNIT.



1 MAIN LEVEL - FLOOR PLAN - PLUMBING

SCALE: 1" = 10'-0"

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1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
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T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
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Gladstone, OR 97027
T (503) 772 1114

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T (541) 686 2031

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LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area
EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER
81596PE
Steve Williamson
STEVEN A. NOLLKAMPER
FEBRUARY 8, 2005

MAIN LEVEL PLAN - PLUMBING

P2.01

GENERAL NOTES

A. ALL EXISTING CONDITIONS MUST BE VERIFIED BY CONTRACTOR IN THE FIELD. REPRESENTATION ON DRAWINGS IS BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF THEIR CREATION.

B. CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION INCLUDING TEMPORARY SERVICES DURING CONSTRUCTION.

C. UNLESS OTHERWISE NOTED, ALL DEMOLISHED PIPING THAT IS ACCESSIBLE SHALL BE REMOVED FROM SITE, AND NOT ABANDONDED IN PLACE.

D. REFERENCE ARCHITECTURAL DRAWINGS FOR DEMOLISHED PLUMBING FIXTURES.

KEYED NOTES (#)

1 CONNECT NEW ROOF DRAIN TO EXISTING PIPING. PROVIDE ALL REQUIRED FITTINGS AND OFFSETS FOR COMPLETE AND FUNCTIONING SYSTEM.

2 EXTEND 3/4" COLD WATER FROM NEAREST MAIN UP TO NEW ROOF HYDRANT, RH-1. PROVIDE SHUT OFF VALVE AT CONNECTION TO MAIN AND INSULATE.

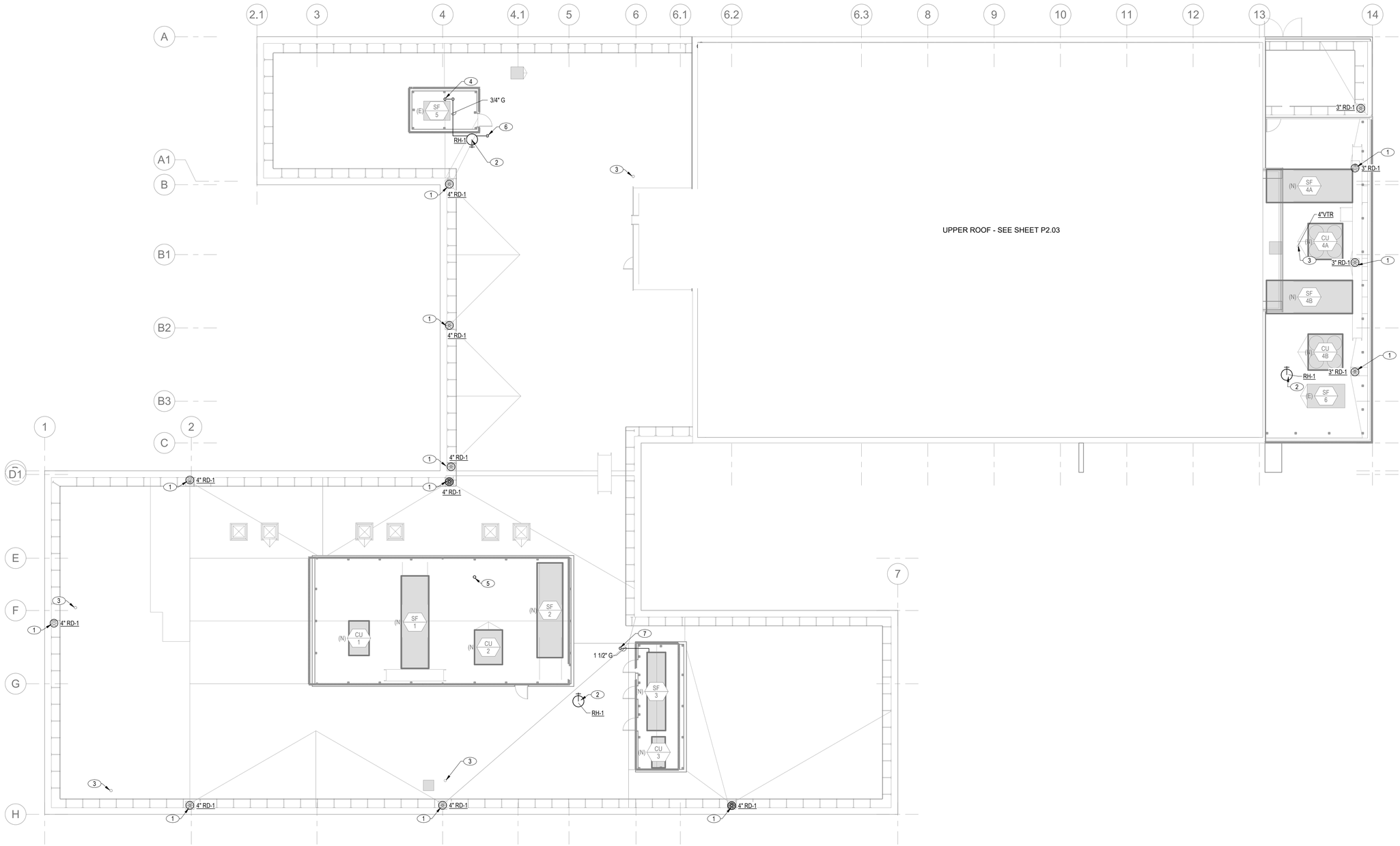
3 EXTEND ROOF VENT FOR NEW ROOF INSULATION THICKNESS. TERMINATION OF VENT PIPING SHALL BE NO LESS THAN 18" ABOVE FINISHED ROOF.

4 PROVIDE 3/4" NATURAL GAS PIPING AND ALL NECESSARY FITTINGS AND ACCESSORIES TO SERVE EXISTING SF-1. PIPING SHALL BE MOUNTED ON PIPE SUPPORT SYSTEM, REFER TO DETAILS. ALL EXTERIOR EXPOSED NATURAL GAS PIPING SHALL BE PAINTED GREY.

5 SEAL GAS PIPING PENETRATION.

6 3/4" NATURAL GAS PIPING DOWN THROUGH PIPE PORTAL.

7 1-1/2" NATURAL GAS PIPING DOWN THROUGH PIPE PORTAL.



1 ROOF PLAN - LOWER LEVEL - PLUMBING

SCALE: 1" = 10'-0"

1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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KPFF
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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
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Portland, OR 97204
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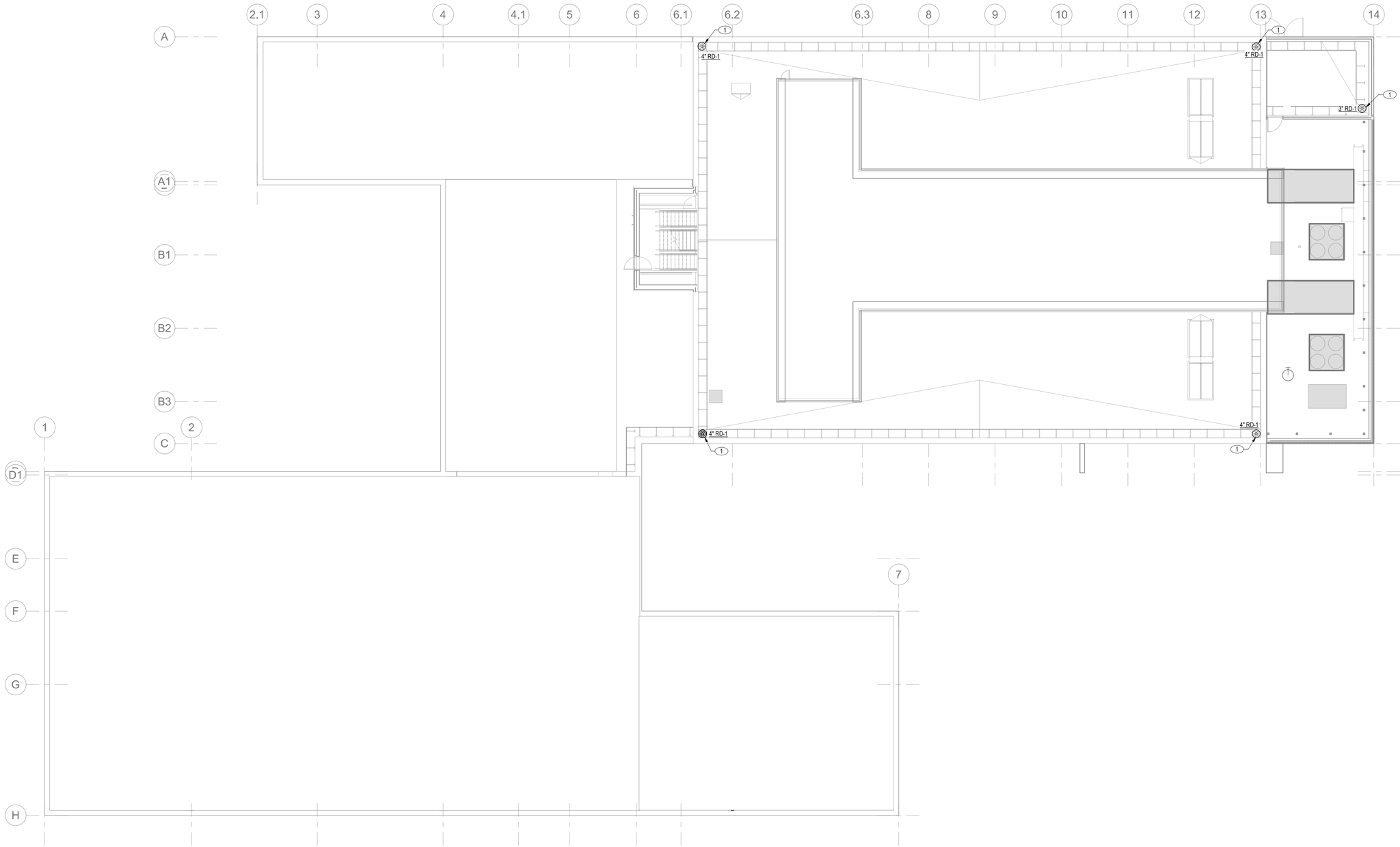
REGISTERED PROFESSIONAL ENGINEER
81596PE
Steve Williamson
STEVEN A. NOLLKAMPER
JANUARY 8, 2020

ROOF PLAN - LOWER LEVEL - PLUMBING

P2.02

KEYED NOTES (#)

1 CONNECT NEW ROOF DRAIN TO EXISTING PIPING. PROVIDE ALL REQUIRED FITTINGS AND OFFSETS AS REQUIRED FOR COMPLETE AND FUNCTIONING SYSTEM.



1 ROOF PLAN - UPPER LEVEL - PLUMBING

SCALE: 1" = 10'-0"

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1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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Seattle, Washington 98104
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www.bassettiarch.com

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KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
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Portland, OR 97204
T (503) 227 5280

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GLUMAC
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Portland, OR 97204
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Gladstone, OR 97027
T (503) 772 1114

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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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REGISTERED PROFESSIONAL ENGINEER
91596PE
STEVEN A. NOLLKAMPER
FEBRUARY 8, 2005

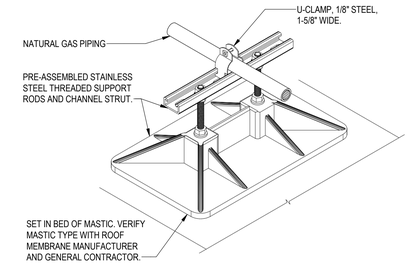
ROOF PLAN - UPPER LEVEL - PLUMBING

P2.03

PLUMBING FIXTURE SCHEDULE

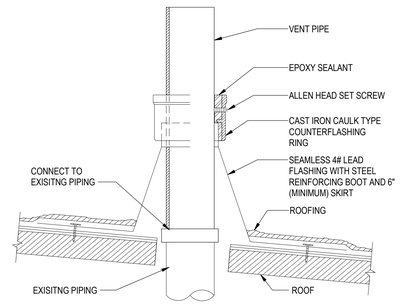
TAG	FIXTURE	MANUFACTURER	MODEL	CONNECTION SIZE W	V	HW	CW	REMARKS
RH-1	ROOF HYDRANT	WOODFORD	SRH-MS				3/4"	
DRAINS								
RD-1	ROOF DRAIN	JR SMITH	1010-RDP	4"				15-1/4" DIAMETER, ENAMEL COATED CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, (RDP)ROOF DECK PLATE FOR INSTALLATION FROM ABOVE, EXTENSION, SUMP RECEIVER, ALUMINUM DOME, NO HUB JOINT.

NOTES:
A. COMPLY WITH ALL MANUFACTURER INSTALLATION REQUIRMENTS TO PROVIDE COMPLETE AND OPERATIONAL FIXTURES.
B. PROVIDE TRANSITION FITTING AS REQUIRED TO CONNECT TO BRANCH PIPING, WHICH MAY BE A DIFFERENT SIZE, AND AS SHOWN ON DRAWINGS.
C. PROVIDE STOP VALVES, BACKFLOW PREVENTERS AND SUPPORTS AS REQUIRED BY THE MANUFACTURER AND PLUMBING CODE.



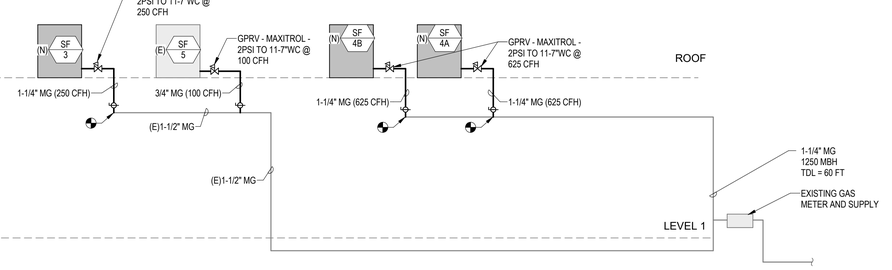
NOTES:
1. SUPPORT PIPE EVERY 6' OC (MAXIMUM) AND AT EACH ELBOW.

3 PIPE STAND
SCALE: NONE

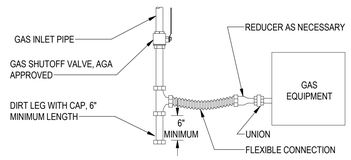


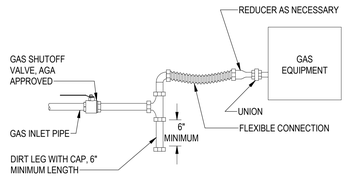
NOTES:
1. REFER ARCHITECTURAL PLANS AND ROOFING SYSTEM FOR ADDITIONAL REQUIREMENTS.
2. VENT SHALL EXTEND THROUGH FLASHING AND TERMINATE VERTICALLY NOT LESS THAN SIX INCHES (152 MM) ABOVE THE ROOF NOR LESS THAN ONE FOOT (305 MM) FROM A VERTICAL SURFACE. WHERE LOCATED IN FREEZING CLIMATES THE VENT SHALL TERMINATE NOT LESS THAN TEN INCHES (254 MM) ABOVE ROOF, OR IN ACCORDANCE WITH LOCAL AHJ.
3. VENT SHALL TERMINATE NOT LESS THAN TEN FEET (3048 MM) FROM, OR NOT LESS THAN THREE FEET (914 MM) ABOVE AN OPERABLE WINDOW, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT, OR NOT LESS THAN THREE FEET (914 MM) IN EVERY DIRECTION FROM A LOT LINE, ALLEY OR STREET.

2 VTR FLAT ROOF
SCALE: NONE



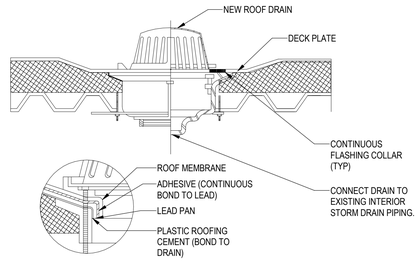
5 PLUMBING - FUEL GAS RISER DIAGRAM
SCALE: 1/8" = 1'-0"





NOTES:
1. HIGH TENSILE STRENGTH STAINLESS STEEL FLEXIBLE CONNECTION, 12" LENGTH, AGA/CSA APPROVED, PRE-COATED.
2. PAINT ALL EXTERIOR GAS PIPING, YELLOW COLOR.
3. PROVIDE PRESSURE REGULATOR WHERE REQUIRED.

4 GAS EQUIPMENT PIPE CONNECTION
SCALE: NONE



NOTES:
1. REFER TO PLANS FOR SIZES AND CONTINUATION.
2. LEAD PAN BY PLUMBING INSTALLER.
3. INSTALLATION OF ROOF DRAINS SHALL BE FROM ABOVE, INTERIOR STORM PIPING IS TO REMAIN.

1 ROOF DRAINS
SCALE: NONE

bassetti architects
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81596PE
Steve Millsaps
OREGON
JANUARY 8, 2015
STEVEN A. NOLLKAMPER

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PLUMBING DETAILS AND SCHEDULES

P9.01

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ELECTRICAL LEGEND

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS ARE APPLICABLE TO THIS PROJECT. REFER TO DETAILS AND NOTES FOR MOUNTING HEIGHTS.

LIGHTING

SYMBOL	DESCRIPTION
	RECESSED 2X4 LUMINAIRE
	SURFACE MOUNTED 2X4 LUMINAIRE
	RECESSED 1X4 LUMINAIRE
	SURFACE MOUNTED 1X4 LUMINAIRE
	RECESSED 2X2 LUMINAIRE
	SURFACE MOUNTED 2X2 LUMINAIRE
	SHADING OF ANY LUMINAIRE INDICATES CONNECTION TO ALTERNATE POWER SOURCE (EMERGENCY, UPS, STANDBY, ETC.) PER CIRCUITING INDICATED
	SUSPENDED LINEAR LUMINAIRE (SIZE VARIES)
	WALL MOUNTED LINEAR LUMINAIRE (SIZE VARIES)
	SUSPENDED PENDANT LUMINAIRE (SIZE VARIES)
	RECESSED DOWNLIGHT, CEILING MOUNTED
	SURFACE DOWNLIGHT, CEILING MOUNTED
WW DIRECTION	RECESSED WALLWASH
WW DIRECTION	SURFACE WALLWASH
	RECESSED LINEAR WALLWASH
	SURFACE LINEAR WALLWASH
	RECESSED WALL MOUNTED LUMINAIRE
	TRACK LIGHTING WITH HEADS AS INDICATED.
	RECESSED CEILING ADJUSTABLE POINT SOURCE
	SURFACE CEILING ADJUSTABLE POINT SOURCE
	WALL MOUNTED LUMINAIRE
	WALL MOUNTED DIRECTIONAL (SIZE VARIES)
	FLUORESCENT STRIPLIGHT - POWER FEED SECTION, FEED THROUGH SECTION. LENGTH AS SHOWN.
	WALL MOUNTED FLUORESCENT STRIPLIGHT
	UNDERCABINET FLUORESCENT STRIPLIGHT
	CONTINUOUS LINEAR SOURCE (LED, COLD CATHODE, NEON, FIBER OPTIC, ETC...)
	BATTERY POWER EMERGENCY UNIT EQUIPMENT (SEE LUMINAIRE SCHEDULE FOR QUANTITY OF HEADS) - WALL, CEILING MOUNTED.
	ILLUMINATED EXIT SIGN, SHADED QUADRANT INDICATES FACES, ARROWS AS SHOWN
	BOLLARD
	POLE MOUNTED LUMINAIRE- SINGLE OR DUAL HEAD
	INDICATES ROTATED OPTICS
	POST TOP MOUNTED LUMINAIRE
	IN-GRADE POINT SOURCE
	GARAGE LIGHTING LUMINAIRE WITH CUTOFF LOUVERS
HA 3c / HA 3A	LUMINAIRE MARKING CONVENTION LEGEND: HA = LUMINAIRE TYPE IDENTIFICATION. SEE LUMINAIRE SCHEDULE. 3c = CIRCUIT NUMBER VIA LOCAL SWITCH (LOWERCASE LETTER) THAT SERVES THE LUMINAIRE. 3A = CIRCUIT NUMBER/UPPERCASE LETTER COMBINATION INDICATES LOW VOLTAGE RELAY OR LIGHTING CONTACTOR THAT SERVES THE LUMINAIRE

SWITCHING CONTROLS

SYMBOL	DESCRIPTION
S^a	SINGLE POLE SWITCH (SUPERSCRIPT DENOTES SIMILARLY MARKED LUMINAIRES CONTROLLED TOGETHER)
S_2	TWO POLE SWITCH
S_3	THREE WAY SWITCH
S_4	FOUR WAY SWITCH
S_K	KEY OPERATED SWITCH
D	DIMMER SWITCH. NUMBER INDICATES WATTAGE RATING. IF NOT SHOWN THEN EQUAL TO LOAD.
D	DIMMER SWITCH UNDER SEPARATE COVERPLATE
S_P	SWITCH WITH PILOT LIGHT (PILOT IS "ON WHEN SWITCH IS "ON").
S_{PL}	SWITCH WITH PILOT LIGHT (PILOT IS "ON WHEN SWITCH IS "OFF").
S_{TS}	TIMER SWITCH
S^{aa}	LOW VOLTAGE MOMENTARY CONTACT SWITCH, UPPER CASE LETTER SUPERSCRIPT INDICATES CONNECTION TO LOW VOLTAGE RELAY CONTROLLING SIMILARLY MARKED LUMINAIRES.
S_{WP}	WEATHERPROOF SWITCH
S_V	LINE VOLTAGE, VARIABLE SPEED FAN CONTROL SWITCH. LOCATE ADJACENT TO ADJACENT TO LIGHT SWITCHES.
S_T	MOTOR-RATED THERMAL OVERLOAD SWITCH
S_{OR1}	LIGHTING CONTROL OVERRIDE SWITCH. NUMBER = ZONE CONTROLLED
PC	PHOTOCELL
	EQUIPMENT OPERATOR PUSH BUTTON STATION. PROVIDED WITH EQUIPMENT, INSTALLED AND CONNECTED BY ELECTRICAL, UON.
	PUSHBUTTON OR PUSHBUTTONS.
TC	TIME CLOCK
OS	OCCUPANCY SENSOR - WALL MOUNTED
OS	360 DEGREE OCCUPANCY SENSOR - CEILING MTD.
OS	180 DEGREE OCCUPANCY SENSOR - CEILING MTD.
OS	CORRIDOR/AISLE OCCUPANCY SENSOR - CEILING MOUNTED
S^a OS b	COMBINATION OCCUPANCY SENSOR & SWITCH GANGED UNDER A COMMON COVER PLATE. OCCUPANCY SENSOR TO CONTROL ALL LUMINAIRES IN ROOM WITH 1/2 LIGHT REDUCTION CONTROLLED BY SWITCH.
T	THERMOSTAT - WALL, CEILING.
S_{EPO} EPO	EMERGENCY POWER OFF, HEAVY-DUTY, OIL-TIGHT RED MUSHROOM-HEAD PUSHBUTTON WITH GUARD.
	LIGHTING CONTROL PANEL AND ASSOCIATED COMPONENTS. PROVIDE CONTROL POWER AS REQUIRED OR AS INDICATED.

DISTRIBUTION & EQUIPMENT

SYMBOL	DESCRIPTION
	BRANCH CIRCUIT PANELBOARDS, SURFACE AND RECESS MOUNTED
	MOTOR CONTROL CENTER WITH CODE CLEARANCES SHOWN, DASHED EQUIP. = FUTURE
	TRANSFORMER WITH CODE CLEARANCES SHOWN
	SERVICE AND/OR DISTRIBUTION EQUIPMENT WITH CODE CLEARANCES SHOWN
	CONNECTION TO MOTOR PROVIDED BY OTHERS
VFD	CONNECTION TO VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT
	DISCONNECT SWITCH, SIZE AS NOTED OR IF NOT SHOWN SIZE PER CONNECTED MOTOR SIZE AND MOTOR DISCONNECT SCHEDULE
F	FUSED DISCONNECT SWITCH, SIZE AS NOTED. SIZE FUSE PER MANUFACTURER'S RECOMMENDATIONS
C	ENCLOSED CIRCUIT BREAKER DISCONNECT SWITCH, TRIP SIZE AS NOTED.
	DISCONNECT W/ MAGNETIC MOTOR STARTER (CONTROLLER) OR CONTACTOR. SIZE PER LOAD SERVED. NEMA SIZE #1 MINIMUM.
	MAGNETIC MOTOR STARTER (CONTROLLER) OR CONTACTOR. SIZE PER LOAD SERVED. NEMA SIZE #1 MINIMUM.
	CONNECTION TO EQUIPMENT PROVIDED BY OTHERS. SHADED = ON ALT. POWER SOURCE NOTED
	CONNECTION TO EQUIPMENT WITH INTEGRAL DISCONNECT PROVIDED BY OTHERS. SHADED = ON ALTERNATE POWER SOURCE NOTED
	EQUIPMENT OR TERMINAL ENCLOSURE AS NOTED, SURFACE AND RECESS MOUNTED
DM	DAMPER MOTOR
	BUSWAY RISER
C / F	BUSWAY STAB-IN TYPE CIRCUIT BREAKER OR FUSE DISCONNECT. SIZE AS NOTED.

DIAGRAMS

SYMBOL	DESCRIPTION
	AUTOMATIC TRANSFER SWITCH (ATS)
	AUTOMATIC TRANSFER SWITCH WITH MAINTENANCE BYPASS(BIATS)
	OVERLOADS
	NORMALLY CLOSED CONTACTOR OR RELAY CONTACTS
	NORMALLY OPEN CONTACTOR OR RELAY CONTACTS
	BUS DUCT
	BUS BAR
	BATTERY GENERAL
	RESISTOR
	CONNECTOR, FEMALE AND MALE RESPECTIVELY
	PIPE GROUND
C	CONTACTOR COIL
R	RELAY COIL
D / I	LIGHTNING SURGE ARRESTOR D = DISTRIBUTION CLASS I = INTERMEDIATE CLASS
SPD	SURGE PROTECTION DEVICE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	NORMALLY OPEN PUSH BUTTON
	NORMALLY CLOSED PUSH BUTTON
	FUSED VOLTAGE SENSE LEADS
PF	METER: POWER FACTOR
KWH	METER: KILOWATT HOUR
M	UTILITY CO. APPROVED SOCKET WITH METER INSTALLED. SQUARE = REMOTE METER
DMU	DIGITAL METER UNIT. REFER TO SPECIFICATIONS.
STB	CURRENT TRANSFORMER SHORTING TERMINAL BLOCK.
	TERMINAL FOR FIELD CONNECT, SIZE & TYPE SUITABLE FOR CONDUCTOR INSTALLED.
	LED INDICATOR LIGHT, PUSH TO TEST, R=RED, G= GREEN, B= BLUE, Y= YELLOW, W= WHITE
	DELTA CONNECTION
	GROUNDED WYE CONNECTION
	CONNECTION TO GROUND
100AT 225AF	CIRCUIT BREAKER, WITH TRIP & FRAME AMPERE RATING
225AF 400AS	FUSED SWITCH, WITH FUSE AND SWITCH AMPERE RATING
	INDIVIDUALLY MOUNTED CIRCUIT BREAKER
52	CIRCUIT BREAKER, MEDIUM VOLTAGE, DRAWOUT
	DRAWOUT CIRCUIT BREAKER
GF	GROUND FAULT TRIP UNIT
BA	BELL ALARM TRIP MODULE CONTACTS
ST	SHUNT TRIP UNIT, 120VAC OR VOLTAGE AS NOTED
AM	INTEGRAL AMMETER DISPLAY
K	KEY INTERLOCK
10	CAPACITOR, POWER FACTOR CORRECTION, SIZE IN KVAR
G	GENERATOR
	FUSE, HOLDER & PULLER
C	CONNECTION TO CHILLER
	SOLENOID

POWER DEVICES

SYMBOL	DESCRIPTION
	SIMPLEX RECEPTACLE - WALL, CEILING, ON ALT.
	DUPLEX RECEPTACLE - WALL, CEILING, ON ALT.
	DOUBLE DUPLEX RECEPTACLE - WALL, CLG, ON ALT.
	SPECIAL PURPOSE RECEPTACLE -WALL, CEILING ON ALT. POWER; NEMA CONFIGURATION AS NOTED
AB	RECEPTACLE TYPE SHOWN -WALL -ABOVE COUNTER BACKSPLASH. SEE ARCHITECTURAL DRAWINGS.
"ON ALT."	SHADED RECEPTACLES NOTED "ON ALT." ABOVE ARE CONNECTED TO ALTERNATE POWER SOURCE (EMERG., STANDBY, UPS, ETC.) PER CIRCUITING INDICATED
	DUPLEX RECEPTACLE - WALL - HALF SWITCHED
C	CONTROLLED DUPLEX / DOUBLE DUPLEX RECEPTACLE
S	COMBINATION SWITCH/DUPLEX RECEPTACLE
GFI	DUPLEX RECEPTACLE - WALL - WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER
WP	RECEPTACLE TYPE SHOWN W/ WEATHERPROOF COVER AND INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER
+42"	RECEPTACLE TYPE SHOWN AT SPECIAL HEIGHT
	WALL MOUNTED ELECTRICAL CONNECTION TO ELECTRIFIED FURNITURE. PROVIDE 8 WIRES (4 HOTS, 1 DEDICATED NEUTRAL, 1 COMMON NEUTRAL, 1 IG) NEUTRALS TO BE #10 AWG. USE LIQUID-TIGHT FLEX.
	CLOCK HANGER RECEPTACLE
	FLUSH FLOOR BOX DEVICE - DEVICE TYPE PER SYMBOLS ABOVE
	PEDESTAL FLOOR DEVICE - DEVICE TYPE PER SYMBOLS ABOVE
	POKE THRU UNIT WITH DUPLEX RECEPTACLE - FLUSH, PEDESTAL MOUNTED.
	POKE THRU UNIT WITH DOUBLE DUPLEX RECEPTACLE - FLUSH, PEDESTAL MOUNTED.
	COMBO POKE THRU UNIT WITH DUPLEX RECEPTACLE AND TELEPHONE OUTLET - FLUSH, PEDESTAL MOUNTED.
	MULTI-SERVICE FLOOR BOX CAST IN CONC. OR IN RAISED FLOOR - SEE ARCH DWGS; WITH RECEPTACLES & SIGNAL OUTLETS AS NOTED.
J	POKE THRU UNIT WITH JUNCTION BOX. RACEWAY COMPONENTS RC-700 SERIES.
	TELE/POWER POLE, POWER POLE
	TELE/POWER POLE WITH WHIP CONNECTION TO ELECTRIFIED FURNITURE
	TWO-PIECE SURFACE METAL RACEWAY WITH RECEPTACLES AS NOTED, BACK LENGTH AS INDICATED ON THE DRAWINGS AND WITH ALL FITTINGS AS REQUIRED.
	TWO OR THREE COMPARTMENT SURFACE METAL RACEWAY WITH RECEPTACLES AND OUTLETS AS INDICATED, LENGTH AS INDICATED ON THE DRAWINGS. PROVIDE ALL FITTINGS AS REQUIRED.
TX	REMOTE MOUNTED LINE TO LOW-VOLTAGE FUSED TRANSFORMER. CONCEAL FROM VIEW.

SIGNAL DEVICES

SYMBOL	DESCRIPTION
W	TERMINAL/MOUNTING BOARD, 8' HIGH, 3/4"x4'x WIDTH AS SHOWN, FIRE RETARDANT TREATED PLYWOOD.
	SIGNAL SYSTEM EQUIPMENT ENCLOSURES AS NOTED- SURFACE, RECESSED MOUNTED
	COMBO TELEPHONE/DATA OUTLET - WALL
W	TELEPHONE OUTLET - WALL, W = USE HIGHER MOUNTING HEIGHT PER MOUNTING HEIGHT DETAIL
	DATA OUTLET - WALL
S	SPEAKER - WALL, CEILING
V	VOLUME CONTROL - WALL
B	BELL
	BUZZER
	CHIME
C	SYSTEM CLOCK - WALL , CEILING
I / M	INTERCOM STATION - WALL, DESK. M = MASTER STATION
M	MICROPHONE JACK - WALL, FLOOR
	PUSHBUTTON OR PUSHBUTTONS
	RF COAX CABLE OUTLET (TV, VCR, ETC.)
	COMBINATION RF COAX CABLE AND DATA OUTLET
	RF COAX CABLE SIGNAL SPLITTER
S PA	PAGING SYSTEM HORN (OUTDOOR)
AV	AV INPUT OUTLET, 1"C WITH 3-GANG BOX. CONDUIT STUBBED ABOVE ACCESSIBLE TILE CEILING.
IR	ASSISTIVE LISTENING INFRARED TRANSMITTER PANEL, 1"C WITH 2-GANG BOX. CONDUIT STUBBED ABOVE ACCESSIBLE TILE CEILING.
	RF COAX CABLE DISTRIBUTION AMPLIFIER. PROVIDE 120V POWER AS REQUIRED OR AS NOTED. SEE RISER DIAGRAM.
	FLUSH FLOOR DEVICE - DEVICE TYPE PER SYMBOLS ABOVE
	PEDESTAL FLOOR DEVICE - DEVICE TYPE PER SYMBOLS ABOVE
S D	DUAL COIL SPEAKER - SURFACE CEILING, RECESSED CEILING.
S	PAGING OR PAGING/SOUND MASKING SPEAKER, MOUNTED ABOVE ACOUSTIC TILE CEILING.

REFERENCE SYMBOLS

SYMBOL	DESCRIPTION
XX	KEYED NOTE REFERENCE
125.4	BRANCH CIRCUIT OR FEEDER TAG; REFER TO BRANCH CIRCUIT AND FEEDER SCHEDULE FOR WIRE AND CONDUIT SIZES & QUANTITY.
1 / E4.1	REFER TO DETAIL ON DRAWING INDICATED
2 / E4.1	ELEVATION TAG: REFER TO ELEVATION NUMBER ON DRAWING INDICATED
A / M-1	SECTION TAG: REFER TO SECTION NUMBER ON DRAWING INDICATED
K112	KITCHEN EQUIPMENT TAG, REFER TO KITCHEN EQUIPMENT SCHEDULE
CH / 1	MECHANICAL EQUIPMENT IDENTIFICATION TAG
EQUIP NAME	EQUIPMENT BY OTHERS IDENTIFICATION TAG

WIRING

SYMBOL	DESCRIPTION
	NEW WORK
	WIRING CONCEALED IN FLOOR OR UNDER GRADE OR ROUTED IN CEILING SPACE OF FLOOR BELOW.
(E)	EXISTING WORK TO REMAIN
(ER)	EXISTING RELOCATED
(D)	EXISTING WORK TO BE REMOVED
(F)	FUTURE WORK
T	TELEPHONE SYSTEM CONDUIT
MV	MEDIUM VOLTAGE CONDUIT
G	BARE GROUNDING GRID OR CONDUCTORS, UON.
GC	GROUNDING CONDUCTOR(S) ROUTED IN CODE SIZED CONDUIT, UON.
	STROKES INDICATE QUANTITY OF #12 AWG. CONDUCTORS, UON. NOTE: WIRING STROKES FOR 20A BRANCH CIRCUITS ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL USE INFORMATION IN PANEL AND BRANCH CIRCUIT SCHEDULES TO PROVIDE REQUIRED CIRCUITING.
	GROUND
	HOT
	NEUTRAL
L1A-1,3	HOME RUN WIRING TO INDICATED DESTINATION, 3/4"C. MIN. OR AS OTHERWISE NOTED. CONTRACTOR SHALL USE CIRCUIT SIZES NOTED IN RESPECTIVE SCHEDULES AND INFORMATION IN THE FEEDER AND BRANCH CIRCUIT SCHEDULES.
HD1A	CONDUIT RUN TURNED UP THROUGH FLOOR OR CEILING. CORE & FIREPROOF AS REQUIRED.
	CONDUIT RUN TURNED DOWN THROUGH FLOOR OR CEILING. CORE & FIREPROOF AS REQUIRED.
	CONDUIT STUBBED OUT AT LOCATION SHOWN. PROVIDE INSULATED BUSHING & PULLROPE.
	TELEPHONE/DATA SLEEVE THROUGH WALL, ABOVE CEILING. EXTEND TO ACCESSIBLE TILE CLG. BOTH SIDES. TERMINATE WITH BUSHINGS. (1) 1.25" CO UON. COORDINATE LOCATIONS WITH CABLE INSTALLER(S) PRIOR TO ROUGH-IN.
	BASKET TYPE CABLE TRAY WITH 90 DEGREE ELBOW SHOWN
	LADDER TYPE CABLE TRAY WITH 90 DEGREE ELBOW SHOWN
J	JUNCTION BOXES, WALL, CEILING AND FLUSH FLOOR MOUNTED. 4" SQ. BOX MIN., LARGER IF REQUIRED
	WIRING EXTENSION POINT - CONDUIT TO MC CABLE OR MANUFACTURED WIRING SYSTEM J-BOX ABOVE ACCESSIBLE CEILINGS AREAS, OR EXTEND CONDUIT & WIRE IN EXPOSED OR "HARD" CEILING AREAS. SHADED= ON ALT. POWER SOURCE (EMERG,UPS,ETC.)
PB	PULL BOX, MIN. SIZE PER NEC., UON.
P	UNDERFLOOR RACEWAY
	FLEXIBLE CONDUIT CONNECTION
	POWER CONNECTION TO DIV 15 FIRE/SMOKE DAMPER. REFER TO FSD CONNECTION DETAIL IF NOT SHOWN

GROUNDING SYSTEM

SYMBOL	DESCRIPTION
G	BARE GROUNDING GRID OR CONDUCTORS, UON.
GC	GROUNDING CONDUCTOR(S) ROUTED IN CODE SIZED CONDUIT, UON.
	GROUND GRID BOND POINT
	GROUND GRID BOND POINT - MECHANICAL CONNECTION
	GROUND GRID BOND POINT - EXOTHERMIC WELD CONNECTION
	GROUND BAR, SEE PLANS AND SPECIFICATIONS FOR DIMENSIONS AND REQUIREMENTS
	GROUND ROD LOCATION
	GROUND ROD IN TEST WELL
	LIGHTNING PROTECTION PARAPET MOUNTED AIR TERMINAL
	LIGHTNING PROTECTION MID ROOF MOUNTED AIR TERMINAL
	LIGHTNING PROTECTION AIR TERMINAL
	LIGHTNING PROTECTION CONDUCTOR ROUTED DOWN
	LIGHTNING PROTECTION BOND PLATE
	LIGHTNING PROTECTION BIMETAL CONNECTION

FIRE ALARM SYSTEM

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL AND ASSOCIATED COMPONENTS. PROVIDE 120V POWER AS REQUIRED OR AS INDICATED.
FAA	FIRE ALARM ANNUNCIATOR
F	FIRE ALARM SYSTEM MANUAL PULL STATION, WALL MOUNTED
	ALARM BELL OR GONG
	STROBE LIGHT - WALL, CEILING MOUNTED (# = CANDELA RATING)
	SPEAKER - WALL, CEILING MOUNTED
15	COMBINATION SPEAKER/STROBE, WALL MOUNTED (# = CANDELA RATING)
	HORN - CEILING, WALL MOUNTED
15	COMBINATION HORN/STROBE - WALL, CEILING MOUNTED (# = CANDELA RATING)
15	COMBINATION MINI HORN/STROBE - WALL, CEILING MOUNTED (# = CANDELA RATING)
	SPRINKLER VALVE TAMPER SWITCH CONNECTION
	SPRINKLER FLOW SWITCH CONNECTION
BR,BT	LIGHT BEAM TYPE SMOKE DETECTOR (BR=BEAM RECEIVER, BT=BEAM TRANSMITTER)
	SMOKE DETECTOR, DUCT MOUNTED, WITH FULL WIDTH SAMPLING TUBES. PHOTOELECTRIC TYPE UON.
D	SMOKE DETECTOR, LOW AIR VELOCITY IN DUCT MOUNTED PHOTOELECTRIC TYPE UON.
P,B,R,C	SMOKE DETECTOR - WALL, CEILING MOUNTED (P=PLENUM MOUNTED, B=W/RELAY BASE, R=ELEVATOR RECALL, C=INTEGRAL TO DOOR CLOSURE)
	SMOKE DETECTOR MOUNTED BELOW RAISED FLOOR
C	ELECTROMAGNETIC DOOR HOLDER - WALL, FLOOR, DOOR CLOSURE MOUNTED. COORDINATE WITH DOOR INSTALLER.
LM	DATA LOOP ISOLATION MODULE
CM	ADDRESSABLE CONTROL MODULE
MM	ADDRESSABLE MONITOR MODULE
EOL	END OF LINE RESISTOR (MAY NOT BE SHOWN ON PLANS)
J	FIREMAN'S PHONE JACK, WALL MOUNTED
P	FIREMAN'S PHONE HANDSET, WALL MOUNTED
	FIRE/SMOKE DAMPER BY DIV 15. WIDTH OF SYMBOL WILL VARY WITH DUCT WIDTH. PROVIDE POWER AND MONITORING AS INDICATED. REFER TO FSD CONNECTION DETAIL.
	FLAME DETECTOR (FLICKER DETECTOR)
	HEAT DETECTOR, CEILING MOUNTED. RATE OF RISE AND FIXED TEMPERATURE TYPE, UON.
R/C,F,R	HEAT DETECTOR (R/C=RATE OF COMBUSTION, F=FIXED TEMP. ONLY, R=RATE OF RISE ONLY)
EWSD	EARLY WARNING SMOKE DETECTION SYSTEM - INCLUDES ALL SAMPLING TUBING
	LIGHT (LAMP, SIGNAL LIGHT, INDICATOR LAMP, STROBE)
A	FIRE ALARM OUTPUT OR RELEASE ABORT PUSHBUTTON, REFER TO SPECIFICATIONS AND DETAILS.
	AGENT RELEASE INITIATING VALVE
	BELL SILENCE SWITCH
	AGENT DISCHARGE SWITCH

SECURITY SYSTEM

SYMBOL	DESCRIPTION
	CCTV SECURITY FIXED CAMERA - WALL,CEILING
D	CCTV SECURITY INDOOR DOME CAMERA
PTZ	CCTV SECURITY PAN/TILT/ZOOM CAMERA
MRIB	INTELLIGENT CARD READER INTERFACE
MO	ROLL-UP DOOR MOTOR CONTROL OUTPUT
D	DOOR POSITION MONITOR SWITCH
RX	REQUEST TO EXIT DEVICE WALL,MULLION MOUNTED
I / M	INTERCOM STATION - WALL, DESK MOUNTED. M = MASTER STATION
DS	DURESS PUSHBUTTON STATION
CR	CARD READER- WALL MOUNTED/MULLION MOUNTED
ER	EMERGENCY DOOR RELEASE BREAK-GLASS STATION
N	LOCAL DOOR MONITOR WARNING NOISE DEVICE
EB	ELECTRIC BOLT
EL	ELECTRIC LOCK/LATCH
ES	ELECTRIC STRIKE
ML	MAGNETIC LOCK
GB	GLASS BREAK SENSOR
H	ELECTRIC POWER TRANSFER HINGE
	SECURITY ELECTRONIC MOTION SENSOR

ABBREVIATIONS

(E)	EXISTING TO REMAIN	IMC	INTERMEDIATE METAL CONDUIT
(F)	FUTURE	KCMIL	THOUSAND CIRCULAR MILS
(R)	EXISTING TO BE REMOVED	KN	KEYED NOTE
(RL)	EXISTING TO BE RELOCATED	KO	KNOCK OUT
AB	ABOVE COUNTER BACKSPLASH	KW	KILOWATTS
ACU	AIR CONDITIONING UNIT	KVA	KILOVOLT-AMPERES
AC	ALTERNATING CURRENT	LTG	LIGHTING
A, AMP	AMPERES	LCP	LIGHTING CONTROL PANEL
ADJ	ADJACENT	MAX	MAXIMUM
AF	AMPERE (RATED) FUSE OR CB FRAME	MCA	MINIMUM CIRCUIT AMPERES
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AFG	ABOVE FINISHED GRADE	MFR	MANUFACTURER
AHJ	AUTHORITY HAVING JURISDICTION	MIN	MINIMUM
AIC	EQUIPMENT SHORT CIRCUIT INTERRUPT RATING (RMS SYM. AMPS)	MISC	MISCELLANEOUS
		MLO	MAIN LUGS ONLY
AL	ALUMINUM (ALLOY)	MO	MANUAL OPERATOR
ALC	AUTOMATIC LIGHTING CONTROL	MTD	MOUNTED
AS	AMPERE (RATED) SWITCH	MTR	MOTOR
AT	CIRCUIT BRKR TRIP SETTING (AMPS)	N	NEUTRAL (GROUNDED CONDUCTOR)
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED
AUTO	AUTOMATIC	NEC	NATIONAL ELECTRICAL CODE
AUX	AUXILIARY	-,NEG	NEGATIVE
AWG	AMERICAN WIRE GAUGE	NEMA	NATIONAL ELECTRICAL MFGR'S ASSOC.
BATT	BATTERY	NL	NIGHT LIGHT (UNSWITCHED)
BC	BARE COPPER	NO	NORMALLY OPEN
BG	BELOW GRADE	NTS	NOT TO SCALE
BRKR	CIRCUIT BREAKER	NP	NAMEPLATE
C	CONDUIT (CIRCULAR RACEWAY)	OC	ON CENTER
CAB	CABINET	OD	OUTSIDE DIAMETER
CB	CIRCUIT BREAKER	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CFM	CUBIC FEET PER MINUTE	ODOI	OWNER FURNISHED, OWNER INSTALLED
CKT	CIRCUIT	OS	OCCUPANCY SENSOR
CLG	CEILING	P	POLE
CO	CONDUIT ONLY	PB	PUSHBUTTON
CPT	CONTROL POWER TRANSFORMER	PH,Ø	PHASE
CT	CURRENT TRANSFORMER	PNL	PANEL
CU	COPPER	+,POS	POSITIVE
DC	DIRECT CURRENT	PRI	PRIMARY
DISC	DISCONNECT	REQD	REQUIRED
DIA	DIAMETER	RNC	RIGID NON-METALLIC CONDUIT (PVC)
DIV	DIVISION	RS	RAPID START
DP	DISTRIBUTION PANEL	RST	REMOTE STATION TRANSMITTER
DPDT	DOUBLE POLE DOUBLE THROW	SAD	SEE ARCHITECTURAL DRAWINGS
DPST	DOUBLE POLE SINGLE THROW	SEC	SECONDARY
DWG	DRAWING	SN	SHEET NOTE
E,EMER	EMERGENCY	SOL	SOLENOID
EF	EXHAUST FAN	SPD	SURGE PROTECTION DEVICE
EMT	ELECTRICAL METALLIC TUBING	SPDT	SINGLE POLE DOUBLE THROW
ENCL	ENCLOSURE	SPST	SINGLE POLE SINGLE THROW
EO	ELECTRICALLY OPERATED	SUB	SUBSTATION
EOL	END OF LINE	SWBD	SWITCHBOARD
EWC	ELECTRIC WATER COOLER	SWGR	SWITCHGEAR
EWH	ELECTRIC WATER HEATER	TB	TERMINAL BOARD
FA	FIRE ALARM	TDC	TIME DELAY CLOSING
FAA	FIRE ALARM ANNUNCIATOR	TDO	TIME DELAY OPENING
FACP	FIRE ALARM CONTROL PANEL	TEL	TELEPHONE
FBO	FURNISHED BY OTHERS	TYP	TYPICAL
FC	FOOT CANDLES	UF	UNDERFLOOR
FF	FLUSH FLOOR MOUNTED	UG	UNDERGROUND
FLA	FULL LOAD AMPERES	UL	UNDERWRITERS LAB
FLEX	FLEXIBLE	UON	UNLESS OTHERWISE NOTED
FPB	FAN POWERED BOX	UPS	UNINTERRUPTIBLE POWER SUPPLY
FSD	FIRE/SMOKE DAMPER	UTX	UTILITY TRANSFORMER
FW	FLUSH WALL MOUNTED	V	VOLTS
FU	FUSE	VA	VOLT-AMPERES
GEN	GENERATOR	VFD	VARIABLE FREQUENCY DRIVE
GFI	GROUND FAULT CIRCUIT INTERRUPTER	W	WATT
G,GND	GROUND	W/	WITH
GRAP	GENERATOR REMOTE ANNUNCIATOR PANEL	W/O	WITHOUT
GRC	GALVANIZED RIGID STEEL CONDUIT	WP	WEATHERPROOF
HLO	HANDLE LOCK-ON(OFF)	XFR	TRANSFORMER
HP	HORSEPOWER	XP	EXPLOSION PROOF
HPF	HIGH POWER FACTOR	Z	ZONE
HTR	HEATER	",IN	INCHES
HZ	HERTZ (CYCLES PER SECOND)	',FT	FEET
IES	ILLUMINATING ENGINEERING SOCIETY	Ø	PHASE
IBC	INDIVIDUAL BRANCH CIRCUIT	>	GREATER THAN
ID	INSIDE DIAMETER	<	LESS THAN
IG	ISOLATED GROUND	≥	GREATER THAN OR EQUAL TO

ELECTRICAL DRAWING LIST

SHEET NUMBER	SHEET NAME	100%DD	PERMIT SET
E0.00	ELECTRICAL LEGEND AND ABBREVIATIONS	X	X
E0.01	BASIS OF DESIGN AND CALCULATION TABLES	X	X
E0.02	MECHANICAL & PLUMBING EQUIPMENT CONNECTION SCHEDULE	X	X
E0.03	LUMINAIRE SCHEDULE AND CONTROLS BOD	X	X
ED1.02	DEMO - ROOF PLAN - POWER	X	X
E2.01	MAIN LEVEL PLAN - LIGHTING		X
E2.02	ROOF PLAN - LOWER LEVEL - LIGHTING	X	X
E3.01	MAIN LEVEL - POWER	X	X
E3.02	ROOF PLAN - POWER	X	X
E5.01	ELECTRICAL SINGLE LINE DIAGRAM		X
E5.02	PANELBOARD SCHEDULES		X
E6.01	ENLARGED PLANS	X	X
E9.01	ELECTRICAL DETAILS	X	X
E9.02	ELECTRICAL DETAILS	X	X

bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

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CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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#	REVISIONS	DATE

Oregon State University
LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER 78483 OREGON PAUL B. LEONETTI

PERMIT SET

ELECTRICAL LEGEND AND ABBREVIATIONS

E0.00

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BASIS OF DESIGN

1. **PURPOSE**

   A. THIS BASIS OF DESIGN NARRATIVE IS INTENDED TO BE USED TO SET THE BASIS OF UNDERSTANDING OF THE PROJECT SCOPE BETWEEN THE OWNER AND THE ASSOCIATED DESIGN PROFESSIONALS, AND TO COMMUNICATE TO THE CONTRACTORS THAT SCOPE OF WORK. IT SHALL ALSO BE CONSIDERED BINDING IN THE SAME MANNER AS THE DRAWINGS AND SPECIFICATIONS ARE.

2. **PROJECT DESCRIPTION**

   A. MECHANICAL AND ROOF REPLACEMENT PROJECT AT OREGON STATE UNIVERSITY LASELLS CENTER.

   B. THE DESIGN INCLUDES THE FOLLOWING NOTABLE FEATURES (BUT IS NOT LIMITED TO THIS SCOPE):

      1. REPLACE ROOFTOP MECHANICAL EQUIPMENT AND INTERIOR VAV TERMINAL UNITS.
      2. REMOVE AND REINSTALL EXISTING EXTERIOR LIGHTS. INSTALL NEW EXTERIOR LIGHTS.
      3. REPLACE INTERIOR LIGHTING AND CONTROLS WITHIN DESIGNATED WORK AREAS (SEE ARCH FOR AREAS).
      4. INSTALL CONDUIT PATHWAY TO ROOF FOR FUTURE PV READY

3. **POWER**

   A. DEMOLITION

      1. EXISTING DEVICES TYPICALLY PROVIDED BY DIVISION 26 DURING NEW CONSTRUCTION SHALL BE SUBSTANTIALLY DEMOLISHED. INFRASTRUCTURE (POWER PANELS AND TRANSFORMERS) SHALL REMAIN, BUT RECEPTACLES, LIGHTING, LIGHTING CONTROLS, AND OTHER MISCELLANEOUS ITEMS IN THE SCOPE OF WORK SHALL GENERALLY BE COMPLETELY REMOVED UNLESS NOTED OTHERWISE. ALL ASSOCIATED BRANCH CIRCUITING SHALL BE DEMOLISHED BACK TO THE ORIGINATING BRANCH PANEL.
      2. MECHANICAL SYSTEMS SHALL BE SUBSTANTIALLY RE-WORKED, AND ALL ELECTRICAL CONNECTIONS TO MECHANICAL SYSTEMS WITHIN THE SCOPE OF WORK SHALL GENERALLY BE REMOVED.

   B. NORMAL POWER

      1. USE EXISTING INFRASTRUCTURE IN CORE SPACES TO SERVE THE RENOVATED SPACES.
      2. IT IS ASSUMED THAT THE EXISTING UTILITY SERVICE AND MAIN SWITCHBOARD HAS THE REQUIRED CAPACITY (BOTH IN POWER AND IN SPACE FOR ADDITIONAL CIRCUIT BREAKERS AND FEEDS IF REQUIRED) TO SERVE THE RENOVATED SPACES.
      3. METERING DATA RECEIVED 11/22/2021 FROM OREGON STATE UNIVERSITY FOR LASELLS STEWART CENTER SHOWS PEAK DEMAND FOR THE YEAR 2019 TO BE 236KVA, 284A. 2019 DATA WAS USED DUE TO THE COVID PANDEMIC REDUCING USAGE DURING 2020 AND 2021.
      4. NEC 220.87 ALLOWS FOR 125% OF THE PEAK MAXIMUM DEMAND TO BE USED TO DETERMINE THE EXISTING LOAD OF THE BUILDING. EXISTING LOAD IS CALCULATED TO BE 295KVA, 355A.

   C. EMERGENCY POWER

      1. EMERGENCY LIGHTING TO BE POWERED VIA BATTERY BACKUP.

   D. STANDBY POWER

      1. STANDBY POWER IS NOT A PROJECT REQUIREMENT.

   E. MECHANICAL/PLUMBING

      1. PROVIDE POWER TO ALL DIVISION 22 AND DIVISION 23 EQUIPMENT/DEVICES REQUIRING POWER.
      2. IT SHALL BE THE RESPONSIBILITY OF ELECTRICAL CONTRACTOR TO VERIFY POWER REQUIREMENTS WITH THE MECHANICAL AND PLUMBING CONTRACTOR WITH THE SUBMITTED AND APPROVED MECHANICAL AND PLUMBING EQUIPMENT/DEVICES PRIOR TO THE PURCHASE AND INSTALLATION OF MATERIALS, AND TO PROVIDE THE VERIFIED POWER REQUIREMENTS. IF CHANGES TO ELECTRICAL DESIGN ARE NECESSARY TO PROVIDE THE VERIFIED POWER REQUIREMENTS, COORDINATE WITH THE ENGINEER TO DETERMINE A RESOLUTION.
      3. REPLACE ALL DISCONNECTS, FEEDERS AND BREAKERS FEEDING MECHANICAL EQUIPMENT THAT IS BEING REPLACED WITH NEW UNIT.
      4. PROVIDE RECEPTACLE WITHIN 25 FEET OF ALL MECHANICAL AND PLUMBING EQUIPMENT.

   F. MISCELLANEOUS POWER CONNECTIONS

      1. PROVIDE POWER AND ASSOCIATED COMPONENTS TO ALL NEW POWERED EQUIPMENT/DEVICES WITHIN PROJECT, EVEN IF NOT EXPLICITLY STATED IN THIS DRAWING SET. EXAMPLES INCLUDE:

         a. FUSED DISCONNECTS FOR FAN COIL UNITS
         b. POWER FOR MECHANICAL CONTROLS
         c. POWER FOR SECURITY POWER SUPPLIES
         d. POWER FOR FIRE ALARM SYSTEM

4. **FIRE ALARM**

   A. THE EXISTING FIRE ALARM SYSTEM WILL BE MODIFIED TO ACCOMMODATE CEILING REPLACEMENTS AND HVAC EQUIPMENT REPLACEMENTS AS PART OF THIS PROJECT. THE DESIGN FOR THESE MODIFICATIONS WILL BE DESIGN-BUILD. COMPLETE FIRE ALARM PLANS, DIAGRAMS, AND CALCULATIONS SHALL BE PROVIDED BY THE FIRE ALARM CONTRACTOR AS PART OF A DEFERRED SUBMITTAL.

   B. FIRE ALARM CONTRACTOR SHALL COORDINATE WITH DIVISION 23 AND PROVIDE FIRE ALARM DEVICES AND FIRE ALARM CONNECTIONS AS REQUIRED.

   C. REFER TO SPECIFICATIONS FOR ADDITIONAL DESIGN CRITERIA.

   D. IF SHOWN, ANY FIRE ALARM EQUIPMENT, DEVICES, DIAGRAMS, AND DETAILS SHOWN IN THIS DRAWING SET ARE SHOWN ONLY TO AID IN ARCHITECTURAL COORDINATION AND TO CONCEPTUALLY INDICATE THE SOME OF THE FIRE ALARM SYSTEM INTENT AT A HIGH LEVEL. E.G. THE INTENDED LOCATION OF THE FIRE ALARM CONTROL PANEL MAY BE IDENTIFIED ON PLANS.

   E. THE FIRE ALARM DESIGN-BUILD CONTRACTOR IS RESPONSIBLE FOR REVIEWING THESE DESIGN DOCUMENTS AND PROVIDING A COMPLETE AND CODE-COMPLIANT FIRE ALARM SYSTEM THAT MEETS THE INTENT AND ALL PROJECT SPECIFIC REQUIREMENTS IDENTIFIED IN THIS DESIGN PACKAGE.

   F. ALL NEW DUCT DETECTORS TO BE SIMPLEX MODEL 4098-9756 AND POWERED THROUGH THE EXISTING FIRE ALARM PANEL.

   G. REFER TO NOTES ON FLOOR PLAN FOR ADDITIONAL DETAILS ABOUT FIRE ALARM DEVICES THAT SHOULD BE REUSED IF POSSIBLE.

ELECTRICAL NOTES

1. THE CIRCUITING SHOWN IS DIAGRAMMATIC. THE DRAFTING METHOD WHICH MOST SIMPLY CONVEYS THE CIRCUITING INTENT AT A GIVEN LOCATION IS EMPLOYED.
2. REFER TO SINGLE-LINE DIAGRAM FOR ADDITIONAL INFORMATION ON NAMED ELECTRICAL EQUIPMENT SHOWN.
3. REFER TO DETAIL DRAWINGS FOR ADDITIONAL INFORMATION. ALL DETAILS APPLY FOR ALL APPLICABLE SITUATIONS WHETHER REFERENCED OR NOT, UNLESS OTHERWISE NOTED.
4. PLANS INDICATE THE APPROXIMATE LOCATIONS (PLUS/MINUS A FEW FEET).
5. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. THESE DRAWINGS ARE DIAGRAMMATIC.
6. ALL NEW RACEWAYS AND CONDUCTORS SHALL BE INSTALLED CONCEALED; CUT AND PATCH EXISTING WALLS TO ACCOMMODATE NEW RACEWAY INSTALLATION. ALL CONDUITS TO BE INSTALLED 90° TO BUILDING LINES.
7. CONTRACTOR IS RESPONSIBLE TO REVIEW ARCHITECTURAL DRAWINGS TO CONFIRM CEILING TYPES IN ALL ROOMS (ACCESSIBLE, EXPOSED, OR "HARD") AND TO USE THE APPROPRIATE WIRING METHOD FOR EACH TYPE. INSURE ALL J-BOXES ARE ACCESSIBLE AFTER ALL OTHER TRADE'S WORK IS COMPLETED. DO NOT LOCATE ANY J-BOXES ON "HARD" CEILINGS; ALL WIRING MUST BE ACCESSIBLE THROUGH DEVICE ONLY IN "DAISEY-CHAIN" METHOD OR WITH DEDICATED HOMERUNS TO EACH DEVICE. J-BOXES MAY BE LOCATED ABOVE OTHER TRADE'S ACCESS DOORS IF FEASIBLE AND DOES NOT INTERFERE WITH ACCESS.
8. CONTRACTOR IS REQUIRED TO UPSIZE BRANCH CIRCUITS AS REQUIRED TO KEEP THE VOLTAGE DROP FROM EXCEEDING 3%. PROVIDE J-BOX/WIREWAY SPLICES AS REQUIRED TO UPSIZE/DOWNSIZE CONDUCTORS TO ENSURE WIRE/LUG COMPATIBILITY AT BRANCH PANELS AND SERVED EQUIPMENT/DEVICES. REFER TO VOLTAGE DROP TABLE ON SHEET E0.01 FOR MORE INFORMATION.
9. WHERE BRANCH CIRCUIT SIZES ARE NOT EXPLICITLY CALLED OUT, BRANCH CIRCUIT WIRE SIZES FOR EACH NEW OR MODIFIED CIRCUIT SHALL BE BASED ON THE CIRCUIT BREAKER INDICATED ON THE ELECTRICAL PANEL SCHEDULES. PROVIDE THE FOLLOWING:

   A. 20A-1P C.B. — 20.1 BRANCH CIRCUIT
   B. 20A-2P C.B. — 20.2 BRANCH CIRCUIT
   C. 20A-3P C.B. — 20.3 COPPER FEEDER
   D. 30A-1P C.B. — 30.1 BRANCH CIRCUIT
   E. 30A-2P C.B. — 30.2 BRANCH CIRCUIT
   F. 30A-3P C.B. — 30.3 COPPER FEEDER
   G. 40A-2P C.B. — 40.2 BRANCH CIRCUIT

POWER NOTES

1. WHERE REASONABLE, BOXES SHALL BE IN SEPARATE STUD SPACES FROM BOXES SERVING OTHER ROOMS TO MINIMIZE SOUND TRANSFER.
2. COORDINATE EXACT MECHANICAL EQUIPMENT LOCATIONS AND REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. COORDINATE CONDUIT REQUIREMENTS FOR ALL HVAC EQUIPMENT WITH CONTROLS CONTRACTOR.
3. FOR ELECTRICAL CONNECTIONS AND CIRCUITING TO MECHANICAL EQUIPMENT SHOWN ON PLANS, REFER TO MECHANICAL AND PLUMBING EQUIPMENT CONNECTION SCHEDULE.
4. FOR EQUIPMENT PROVIDED BY OTHERS, COORDINATE EQUIPMENT LOCATIONS AND REQUIREMENTS WITH OWNER AND ARCHITECT PRIOR TO ROUGH-IN.
5. PROVIDE SPECIAL RECEPTACLES THAT MATCH CORD AND CAP PROVIDED WITH EQUIPMENT UNLESS NOTED OTHERWISE. USE NEMA CONFIGURATION NUMBER CALLED OUT ON PLANS OR ELEVATIONS IF SHOWN.
6. PROVIDE ALL RECEPTACLES WITHIN 6' OF A SINK, AND WITHIN THE SAME SPACE, WITH GFCI PROTECTION.

BRANCH CIRCUIT SCHEDULE

CIRCUIT TAG	CONDUITS			CONDUCTORS PER SET		WIRING CONFIG.	NOTES
	MET	SETS	RNC	PHASE/NEUTRAL	GROUND		
60.2N	0.75"	1	1.00"	(2) #6, (1) #6N	#10	1,2W,N	_
60.2	0.75"	1	1.00"	(2) #6	#10	1∅,2W	_
60.1	0.75"	1	1.00"	(1) #6, (1) #6N	#10	1∅,1W,N	_
50.2N	0.75"	1	1.00"	(2) #6, (1) #6N	#10	1∅,2W,N	_
50.2	0.75"	1	1.00"	(2) #6	#10	1∅,2W	_
50.1	0.75"	1	1.00"	(1) #6, (1) #6N	#10	1∅,1W,N	_
40.2N	0.75"	1	1.00"	(2) #8, (1) #8N	#10	1∅,2W,N	_
40.2	0.75"	1	1.00"	(2) #8	#10	1∅,2W	_
40.1	0.75"	1	1.00"	(1) #8, (1) #8N	#10	1∅,1W,N	_
30.2N	0.75"	1	1.00"	(2) #10, (1) #10N	#10	1∅,2W,N	_
30.2	0.75"	1	1.00"	(2) #10	#10	1∅,2W	_
30.1	0.75"	1	1.00"	(1) #10, (1) #10N	#10	1∅,1W,N	_
20.2N	0.50"	1	1.00"	(2) #12, (1) #12N	#12	1∅,2W,N	7,8
20.2	0.50"	1	1.00"	(2) #12	#12	1∅,2W	7,8
20.1	0.50"	1	1.00"	(1) #12, (1) #12N	#12	1∅,1W,N	7,8

NOTES:

1. CONDUCTORS AND CONDUITS SHOWN IN THIS SCHEDULE ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION.
2. THIS SCHEDULE SHALL BE USED ON ALL BRANCH CIRCUITS SERVING LOADS WHERE THE CIRCUIT BREAKER SIZE MATCHES THE AMPACITY OF ITS FEEDER. USE THE "MOTOR CIRCUIT SCHEDULE" FOR LOADS, SUCH AS MOTORS, PUMPS, FANS, CHILLERS, ETC., WHERE THE CIRCUIT BREAKER SIZE IS LARGER THAN THE AMPACITY OF ITS FEEDER.
3. PROVIDE GROUND WIRE NOTED ABOVE IN ALL BRANCH CIRCUITS.
4. NOT ALL BRANCH CIRCUITS SHOWN ABOVE ARE NECESSARILY USED ON THIS PROJECT.
5. "MET"= EMT, IMC, GRC, RAC, OR PVC COATED GRC TYPE CONDUITS. "RNC"= PVC 40, PVC 80 OR FIBERGLASS TYPE CONDUITS ROUTED UNDERGROUND. REFER TO SIZING ON DRAWINGS IF "RNC" CONDUITS ARE ROUTED ABOVEGROUND. CONDUIT SIZES NOTED ON SINGLE-LINE DIAGRAM OR ON PLANS SUPERSEDE SIZES NOTED ABOVE IF LARGER.
6. THIS SCHEDULE APPLIES TO STANDARD LENGTH CIRCUITS ONLY. CONTRACTOR TO UPSIZE WIRING AS REQUIRED TO MEET MINIMUM VOLTAGE DROP REQUIREMENTS INDICATED IN SPECIFICATIONS. GROUND CONDUCTOR WILL ALSO NEED TO BE INCREASED PROPORTIONATELY AS REQUIRED BY NEC.
7. THESE BRANCH CIRCUITS TAGS ARE TYPICALLY NOT SHOWN ON PLANS FOR CLARITY REASONS. CONTRACTOR SHALL USE THIS INFORMATION AS IT APPLIES FOR ALL CONDUITS CONTAINING ONE OR MORE 20A/1P CIRCUITS.
8. CONTRACTOR MAY COMBINE 20A 1 AND 2-POLE CIRCUITS, UP TO A MAXIMUM OF (3) PHASE CONDUCTORS, IN ONE CONDUIT. ALL 3-PHASE AND CIRCUITS LARGER THAN 20A SHALL BE IN DEDICATED CONDUITS, UON. PROVIDE DEDICATED NEUTRALS FOR EACH 1-POLE CIRCUIT.
9. ALL HOMERUNS SHALL USE 0.75" CONDUIT SIZE MINIMUM.

MOTOR CIRCUIT SCHEDULE

FEEDER TAG	CONDUITS (1)			CONDUCTORS PER SET		REMARKS
	MET	SETS	RNC	PHASE	GROUND (2)	
1600.3M	3.00"	5	4.00"	(3) 400 KCMIL	400 KCMIL	-
1400.3M	3.00"	4	4.00"	(3) 500 KCMIL	400 KCMIL	-
1200.3M	2.50"	4	4.00"	(3) 350 KCMIL	350 KCMIL	-
1000.3M	2.50"	3	4.00"	(3) 400 KCMIL	250 KCMIL	-
800.3M	3.00"	2	4.00"	(3) 500 KCMIL	#4/0	-
700.3M	2.50"	2	4.00"	(3) 400 KCMIL	#4/0	-
600.3M	2.50"	2	3.50"	(3) 350 KCMIL	#2/0	-
500.3M	2.50"	2	3.00"	(3) 250 KCMIL	#2/0	-
450.3M	2.50"	2	3.00"	(3) #4/0	#1/0	-
400.3M	3.00"	1	4.00"	(3) 500 KCMIL	#1	-
350.3M	2.50"	1	4.00"	(3) 400 KCMIL	#1	-
300.3M	2.50"	1	3.00"	(3) 350 KCMIL	#2	-
275.3M	2.50"	1	3.00"	(3) 300 KCMIL	#2	-
250.3M	2.50"	1	3.00"	(3) 250 KCMIL	#2	-
225.3M	2.00"	1	3.00"	(3) #4/0	#3	-
200.3M	2.00"	1	2.00"	(3) #3/0	#3	-
175.3M	2.00"	1	2.00"	(3) #2/0	#4	-
150.3M	1.50"	1	2.00"	(3) #1/0	#4	-
125.3M	1.25"	1	1.50"	(3) #1	#4	-
110.3M	1.25"	1	1.50"	(3) #2	#6	-
100.3M	1.25"	1	1.50"	(3) #2	#6	-
90.3M	1.00"	1	1.25"	(3) #4	#6	-
80.3M	1.00"	1	1.25"	(3) #4	#6	-
70.3M	1.00"	1	1.25"	(3) #4	#6	-
60.3M	0.75"	1	1.00"	(3) #6	#8	-
50.3M	0.75"	1	1.00"	(3) #6	#8	-
40.3M	0.75"	1	1.00"	(3) #8	#8	-
30.3M	0.75"	1	1.00"	(3) #10	#10	-
20.3M	0.75"	1	1.00"	(3) #12	#12	-

GENERAL NOTES

A. CONDUCTORS AND CONDUITS SHOWN IN THIS SCHEDULE ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION.
B. THIS MOTOR BRANCH CIRCUIT SCHEDULE SHALL BE USED FOR ALL CIRCUITS WHERE THE CIRCUIT BREAKER SIZE PROTECTING THE LOAD IS LARGER THAN THE AMPACITY OF THE CIRCUIT CONDUCTORS. EXAMPLES ARE: MOTORS, CHILLERS, ELEVATORS, FANS, PUMPS, ETC.
C. PROVIDE NOTED SIZE GROUND CONDUCTOR IN EACH CONDUIT OF CIRCUITS CONSISTING OF MULTIPLE SETS OF PARALLEL CONDUCTORS.
D. NOT ALL CIRCUITS ARE NECESSARILY USED ON THIS PROJECT.
E. NOMINAL AMPACITIES GREATER THAN 100 AMPS ARE FOR 75°C TERMINATIONS.

SCHEDULE REMARKS

(1) "MET"= EMT, GRC (RIGID), RAC, OR PVC COATED GRC TYPE CONDUITS. "RNC"= PVC 40, PVC 80 OR FIBERGLASS TYPE CONDUITS ROUTED UNDERGROUND. REFER TO SIZING ON DRAWINGS IF "RNC" CONDUITS ARE ROUTED ABOVEGROUND. CONDUIT SIZES NOTED ON SINGLE-LINE DIAGRAM OR ON PLANS SUPERSEDE SIZES NOTED ABOVE IF LARGER.

(2) PROVIDE GROUND WIRE NOTED IN ALL MOTOR BRANCH CIRCUITS.

COPPER FEEDER SCHEDULE

FEEDER TAG	CONDUITS			CONDUCTORS PER SET		NOTES
	MET	SETS	RNC	PHASE/NEUTRAL	GROUND	
4000.4	3.50"	11	4.00"	(4) 500 KCMIL	500 KCMIL	-
4000.3	3.00"	11	4.00"	(3) 500 KCMIL	500 KCMIL	-
3500.4	3.50"	10	4.00"	(4) 500 KCMIL	500 KCMIL	-
3500.3	3.00"	10	4.00"	(3) 500 KCMIL	500 KCMIL	-
3000.4	3.50"	8	4.00"	(4) 500 KCMIL	400 KCMIL	-
3000.3	3.00"	8	4.00"	(3) 500 KCMIL	400 KCMIL	-
2500.4	3.50"	7	4.00"	(4) 500 KCMIL	350 KCMIL	-
2500.3	3.00"	7	4.00"	(3) 500 KCMIL	350 KCMIL	-
2000.4	3.00"	6	4.00"	(4) 400 KCMIL	250 KCMIL	-
2000.3	3.00"	6	4.00"	(3) 400 KCMIL	250 KCMIL	-
1600.4	3.00"	5	4.00"	(4) 400 KCMIL	#4/0	-
1600.3	3.00"	5	4.00"	(3) 400 KCMIL	#4/0	-
1200.4	3.00"	4	4.00"	(4) 350 KCMIL	#3/0	-
1200.3	3.00"	4	3.00"	(3) 350 KCMIL	#3/0	-
1000.4	3.00"	3	4.00"	(4) 400 KCMIL	#2/0	-
1000.3	3.00"	3	4.00"	(3) 400 KCMIL	#2/0	-
800.4	3.00"	3	3.00"	(4) 300 KCMIL	#1/0	-
800.3	2.50"	3	3.00"	(3) 300 KCMIL	#1/0	-
700.4	3.50"	2	4.00"	(4) 500 KCMIL	#1/0	-
700.3	3.00"	2	4.00"	(3) 500 KCMIL	#1/0	-
600.4	3.00"	2	4.00"	(4) 350 KCMIL	#1	-
600.3	2.50"	2	3.00"	(3) 350 KCMIL	#1	-
500.4	2.50"	2	3.00"	(4) 250 KCMIL	#2	-
500.3	2.50"	2	2.50"	(3) 250 KCMIL	#2	-
450.4	2.50"	2	3.00"	(4) #4/0	#2	-
450.3	2.00"	2	2.50"	(3) #4/0	#2	-
400.4	2.00"	2	2.50"	(4) #3/0	#2	-
400.3	2.00"	2	2.50"	(3) 3/0	#2	-
350.4	3.50"	1	4.00"	(4) 500 KCMIL	#2	-
350.3	2.50"	1	4.00"	(3) 500 KCMIL	#2	-
300.4	3.00"	1	3.00"	(4) 350 KCMIL	#4	-
300.3	2.50"	1	3.00"	(3) 350 KCMIL	#4	-

FEEDER TAG	CONDUITS			CONDUCTORS PER SET		NOTES
	MET	SETS	RNC	PHASE/NEUTRAL	GROUND	
250.4	2.50"	1	3.00"	(4) 250 KCMIL	#4	-
250.3	2.50"	1	3.00"	(3) 250 KCMIL	#4	-
225.4	2.50"	1	3.00"	(4) #4/0	#4	-
225.3	2.00"	1	2.50"	(3) #4/0	#4	-
200.4	2.00"	1	2.50"	(4) #3/0	#6	-
200.3	2.00"	1	2.50"	(3) #3/0	#6	-
175.4	2.00"	1	2.50"	(4) #2/0	#6	-
175.3	1.50"	1	2.00"	(3) #2/0	#6	-
150.4	2.00"	1	2.00"	(4) #1/0	#6	-
150.3	1.50"	1	2.00"	(3) #1/0	#6	-
125.4	1.50"	1	1.50"	(4) #1	#6	-
125.3	1.25"	1	1.50"	(3) #1	#6	-
110.4	1.25"	1	1.50"	(4) #2	#6	-
110.3	1.25"	1	1.50"	(3) #2	#6	-
100.4	1.25"	1	1.50"	(4) #2	#8	-
100.3	1.25"	1	1.50"	(3) #2	#8	-
90.4	1.25"	1	1.50"	(4) #2	#8	-
90.3	1.25"	1	1.50"	(3) #2	#8	-
80.4	1.25"	1	1.50"	(4) #4	#8	-
80.3	1.00"	1	1.50"	(3) #4	#8	-
70.4	1.25"	1	1.50"	(4) #4	#8	-
70.3	1.00"	1	1.50"	(3) #4	#8	-
60.4	1.00"	1	1.00"	(4) #6	#10	-
60.3	0.75"	1	1.00"	(3) #6	#10	-
50.4	1.00"	1	1.00"	(4) #6	#10	-
50.3	0.75"	1	1.00"	(3) #6	#10	-
40.4	0.75"	1	1.00"	(4) #8	#10	-
40.3	0.75"	1	1.00"	(3) #8	#10	-
30.4	0.75"	1	1.00"	(4) #10	#10	-
30.3	0.75"	1	1.00"	(3) #10	#10	-
20.4	0.75"	1	1.00"	(4) #12	#12	-
20.3	0.75"	1	1.00"	(3) #12	#12	-
---.-K						7
XFR						8
SCHD						9

NOTES:

1. CONDUCTORS AND CONDUITS SHOWN IN THIS SCHEDULE ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION.
2. THIS SCHEDULE SHALL BE USED ON ALL FEEDERS SERVING LOADS WHERE THE CIRCUIT BREAKER SIZE MATCHES THE AMPACITY OF ITS FEEDER. USE THE "MOTOR CIRCUIT SCHEDULE" FOR LOADS, SUCH AS MOTORS, PUMPS, FANS, CHILLERS, ETC., WHERE THE CIRCUIT BREAKER SIZE IS LARGER THAN THE AMPACITY OF ITS FEEDER.
3. PROVIDE GROUND WIRE NOTED ABOVE IN ALL FEEDERS AND BRANCH CIRCUITS. WHERE MULTIPLE CONDUITS ARE INDICATED PROVIDE NOTED GROUND WIRE IN EACH CONDUIT.
4. NOT ALL FEEDERS ARE NECESSARILY USED ON THIS PROJECT.
5. NOMINAL AMPACITIES GREATER THAN 100 AMPS ARE FOR 75 DEG..C TERMINALS.
6. "MET"= EMT, IMC, GRC, RAC, OR PVC COATED GRC TYPE CONDUITS. "RNC"= PVC 40, PVC 80 OR FIBERGLASS TYPE CONDUITS ROUTED UNDERGROUND. REFER TO SIZING ON DRAWINGS IF "RNC" CONDUITS ARE ROUTED ABOVEGROUND. CONDUIT SIZES NOTED ON SINGLE-LINE DIAGRAM OR ON PLANS SUPERSEDE SIZES NOTED ABOVE IF LARGER.
7. OVERSIZED (173% MIN.) NEUTRAL FOR FEEDERS CONNECTED TO A K-4 OR HIGHER RATED TRANSFORMER.
8. REFER TO TRANSFORMER SCHEDULE FOR STANDARD PRIMARY AND SECONDARY FEEDER SIZES.
9. REFER TO MCC OR PANEL SCHEDULES FOR FEEDER SIZES TO EQUIPMENT NOTED WITH THIS TAG.

VOLTAGE DROP TABLE

		MAXIMUM ALLOWED RUN LENGTH (FT)				
VOLT	AMP	#12	#10	#8	#6	#4
120	2	500	800	1200	2000	3250
	4	250	400	600	1000	1625
	6	175	250	400	650	1100
	8	125	200	325	500	800
	10	100	150	250	400	650
	12	85	125	200	350	550
	14	75	110	175	300	450
	16	60	100	150	250	400
277	2	1100	1800	2750		
	4	550	900	1375		
	6	350	600	950		
	8	275	450	700		
	10	225	350	550		
	12	175	300	475		
	14	150	250	400		
	16	140	225	360		

NOTES:

1. THIS SCHEDULE APPLIES TO ALL BRANCH CIRCUITS. CONTRACTOR SHALL PROVIDE UPSIZED CONDUCTORS AND CONDUIT/ RACEWAYS AS REQUIRED FOR EACH SITUATION.
2. THIS SCHEDULE IS FOR 3% VOLTAGE DROP USING COPPER CONDUCTORS. ALUMINUM CONDUCTORS ARE NOT ALLOWED TO SERVE BRANCH CIRCUITS.
3. USE 12-AMPS FOR ALL CIRCUITS SERVING ONE OR MORE RECEPTACLES, UNLESS HIGHER AMPACITY IS APPROPRIATE OR REQUIRED. USE FULL LOAD AMPS (FLA) OF EQUIPMENT SERVED X 125% FOR ALL OTHER CIRCUITS THAT SERVE A DEDICATED LOAD WITH NO PLANS FOR ADDING FUTURE EQUIPMENT OR A RECEPTACLE TO THAT CIRCUIT.
4. WHENEVER BRANCH CIRCUIT CONDUCTORS ARE UPSIZED THE ASSOCIATED GROUND CONDUCTOR SHALL ALSO BE UPSIZED, PER NEC 250.122.

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
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Gladstone, OR 97027
T (503) 772 1114

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740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER
78483
OREGON
JUNE 2, 2011
PAUL B. LEONETTI
DocuSigned by: Paul Leonetti

PERMIT SET

BASIS OF DESIGN AND CALCULATION TABLES

E0.01

MECHANICAL AND PLUMBING EQUIPMENT - ELECTRICAL CONNECTION SCHEDULE

TAG			LOAD						ALT	CIRCUITING INFORMATION					DISCONNECT		STARTER			
NAME	#	EQUIPMENT DESCRIPTION	HP	KVA	FLA	LOAD CLASS	VOLTS	Ø	POWER	PANEL	CIRCUIT	OCP	POLES	FEEDER	DIV.	TYPE	DIV	TYPE	LEVEL	NOTES
CU	1	CONDENSING UNIT	0 hp	31.26 kVA	38 A	C	480 V	3	No	DP-HMB	23	60 A	3	60.3	DIV. 26	FUSED	DIV. 23	INTEGRAL	TOP OF CMU @ LOBBY	{3}
CU	2	CONDENSING UNIT	0 hp	46.36 kVA	56 A	C	480 V	3	No	DP-HMB	18	80 A	3	80.3	DIV. 26	FUSED	DIV. 23	INTEGRAL	TOP OF CMU @ LOBBY	{3}
CU	3	CONDENSING UNIT	0 hp	17.96 kVA	22 A	C	480 V	3	No	DP-HMB	24	35 A	3	40.3	DIV. 26	FUSED	DIV. 23	INTEGRAL	TOP OF CMU @ LOBBY	
CU	4A	CONDENSING UNIT	0 hp	50.55 kVA	61 A	C	480 V	3	No	SWBD-MS	1	90 A	3	90.3	DIV. 26	FUSED	DIV. 23	INTEGRAL	TOP OF CMU @ LOBBY	{1}{2}
CU	4B	CONDENSING UNIT	0 hp	50.55 kVA	61 A	C	480 V	3	No	SWBD-MS	2	90 A	3	90.3	DIV. 26	FUSED	DIV. 23	INTEGRAL	TOP OF CMU @ LOBBY	{1}{2}
EUH	1	ELECTRIC UNIT HEATER	0 hp	7.98 kVA	10 A	N	480 V	3	No	HB	13,15,17	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
EUH	2	ELECTRIC UNIT HEATER	0 hp	7.98 kVA	10 A	N	480 V	3	No	HB	14,16,18	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
SF	1	SUPPLY FAN	0 hp	14.47 kVA	17 A	C	480 V	3	No	DP-HMB	20	25 A	3	30.3	DIV. 26	FUSED	DIV. 23	VFD	TOP OF CMU @ LOBBY	{2}
SF	2	SUPPLY FAN	0 hp	22.95 kVA	28 A	C	480 V	3	No	DP-HMB	22	50 A	3	50.3	DIV. 26	FUSED	DIV. 23	VFD	TOP OF CMU @ LOBBY	{2}
SF	3	SUPPLY FAN	0 hp	12.14 kVA	15 A	C	480 V	3	No	DP-HMB	19	20 A	3	20.3	DIV. 26	FUSED	DIV. 23	VFD	TOP OF CMU @ LOBBY	{2}
SF	4A	SUPPLY FAN	0 hp	25.34 kVA	30 A	C	480 V	3	No	DP-HMA (SECTION 1)	10	60 A	3	60.3	DIV. 26	FUSED	DIV. 23	VFD	TOP OF CMU @ LOBBY	{3}
SF	4B	SUPPLY FAN	0 hp	25.34 kVA	30 A	C	480 V	3	No	DP-HMA (SECTION 1)	11	60 A	3	60.3	DIV. 26	FUSED	DIV. 23	VFD	TOP OF CMU @ LOBBY	{3}
VAV	1	VARIABLE AIR VOLUME	0 hp	4 kVA	5 A	N	480 V	3	No	HC	13,15,17	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	2	VARIABLE AIR VOLUME	0 hp	3 kVA	4 A	N	480 V	3	No	HC	13,15,17	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	3	VARIABLE AIR VOLUME	0 hp	5.5 kVA	7 A	N	480 V	3	No	DP-HMB	17	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	4	VARIABLE AIR VOLUME	0 hp	10 kVA	12 A	N	480 V	3	No	DP-HMB	10	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	5	VARIABLE AIR VOLUME	0 hp	10 kVA	12 A	N	480 V	3	No	DP-HMB	1	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	6	VARIABLE AIR VOLUME	0 hp	10 kVA	12 A	N	480 V	3	No	DP-HMB	2	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	7	VARIABLE AIR VOLUME	0 hp	10 kVA	12 A	N	480 V	3	No	DP-HMB	3	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	8	VARIABLE AIR VOLUME	0 hp	13 kVA	16 A	N	480 V	3	No	DP-HMB	4	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	9	VARIABLE AIR VOLUME	0 hp	13 kVA	16 A	N	480 V	3	No	DP-HMB	5	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	10	VARIABLE AIR VOLUME	0 hp	12 kVA	14 A	N	480 V	3	No	DP-HMB	6	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	11	VARIABLE AIR VOLUME	0 hp	12 kVA	14 A	N	480 V	3	No	HC	14,16,18	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	12	VARIABLE AIR VOLUME	0 hp	12 kVA	14 A	N	480 V	3	No	HB	7,9,11	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
VAV	13	VARIABLE AIR VOLUME	0 hp	11.5 kVA	14 A	N	480 V	3	No	HB	8,10,12	20 A	3	20.3	DIV. 26	FUSED	NA	NA	MAIN LEVEL	
Grand total: 25				438.87 kVA	528 A															

SCHEDULE REMARKS

A. ALL LISTED ITEMS ARE PROVIDED BY DIVISION 22 AND/OR DIVISION 23. PROVIDE POWER TO ITEMS AS INDICATED ON PLANS AND IN THE SCHEDULE.
B. COORDINATE WITH DIVISIONS 22 AND 23 PRIOR TO INSTALLATION AND VERIFY OVERCURRENT PROTECTION AND FEEDER REQUIREMENTS WITH SUBMITTED MANUFACTURER DATA. INFORM ENGINEER OF CONFLICT(S).
C. WHERE HP IS SHOWN AS "0", REFER TO FLA AND KVA FOR ELECTRICAL LOAD.

SCHEDULE NOTES

1. REFER TO SINGLE LINE DIAGRAM FOR PANEL/CIRCUIT INFORMATION.
2. FACTORY POWERED GFCI RECEPTACLE MOUNTED ON UNIT.
3. FIELD POWERED GFCI RECEPTACLE MOUNTED ON UNIT. REFER TO PLANS FOR CIRCUITING INFORMATION.

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER
78483
OREGON
JUNE 2, 2017
NEIL B. LEOMETTI

MECHANICAL & PLUMBING EQUIPMENT CONNECTION SCHEDULE

E0.02

LUMINAIRE SCHEDULE

TAG	DESCRIPTION	FINISH	LAMP			CCT	MANUFACTURER	MODEL	POWER SUPPLY		VOLTAGE	LOAD	MOUNTING		COMMENTS
			TYPE	LUMENS	CRI				DRIVER	DIMMING TYPE			TYPE	HEIGHT	
L1-4	6-INCH WIDE CONTINUOUS RECESSED LUMINAIRE; 4-FOOT LENGTH	WHITE	LED	305 / LF	90	4000 K	FINELITE	HP 6 R D 4' S 940 F 96LG 277 SC FC-1% MOUNTING FE SW	INTEGRAL DIMMING ELECTRONIC	0-10V	277 V	3.7 W / FT	RECESSED	-	PROVIDE BATTERY BACKUP FOR FIXTURES SHOWN WITH EMERGENCY HATCHING
L1-8	6-INCH WIDE CONTINUOUS RECESSED LUMINAIRE; 8-FOOT LENGTH	WHITE	LED	305 / LF	90	4000 K	FINELITE	HP 6 R D 8' S 940 F 96LG 277 SC FC-1% MOUNTING FE SW	INTEGRAL DIMMING ELECTRONIC	0-10V	277 V	3.7 W / FT	RECESSED	-	PROVIDE BATTERY BACKUP FOR FIXTURES SHOWN WITH EMERGENCY HATCHING
L2-4	4-INCH WIDE CONTINUOUS RECESSED LUMINAIRE; 4-FOOT LENGTH	WHITE	LED	301 / LF	90	4000 K	FINELITE	HP 4 R D 4' S 940 F 96LG 277 SC FC-1% MOUNTING FE SW	INTEGRAL DIMMING ELECTRONIC	0-10V	277 V	3.6 W / FT	RECESSED	-	
L2-8	4-INCH WIDE CONTINUOUS RECESSED LUMINAIRE; 8-FOOT LENGTH	WHITE	LED	301 / LF	90	4000 K	FINELITE	HP 4 R D 8' S 940 F 96LG 277 SC FC-1% MOUNTING FE SW	INTEGRAL DIMMING ELECTRONIC	0-10V	277 V	3.6 W / FT	RECESSED	-	PROVIDE BATTERY BACKUP FOR FIXTURES SHOWN WITH EMERGENCY HATCHING
L3	1-FOOT x 4-FOOT RECESSED LED TROFFER WITH ANGLED CENTER RAIL AND FIELD-REPLACEABLE LIGHT ENGINE	WHITE	LED	2445	90	4000 K	FINELITE	HPR LED A 1x4 DCO B 940 277V SC	INTEGRAL DIMMING ELECTRONIC	0-10V	277 V	37.1 W	RECESSED	-	
L4	TRACK HEAD WITH WALL WASH OPTICS	WHITE	LED	1233	90	3000 K	COOPER HALO	L 815MED 10 WW 930 P	INTEGRAL DIMMING ELECTRONIC	ELV	120 V	12.7 W	SURFACE	-	PROVIDE PRICING FOR THE FOLLOWING: -MEDIUM FLOOD OPTIC ACCESSORY -MEDIA HOLDER -SOFT FOCUS LENS -PRISMATIC DIFFUSE LENS
LT	SINGLE-CIRCUIT TRACK	WHITE	-	-	-	-	COOPER HALO	L650 SERIES	-	-	120 V	0.0 W / FT	SURFACE	-	WATTAGE IS PER OVERCURRENT PROTECTION; PROVIDE LENGTHS AS REQUIRED PER DRAWINGS
S5	LED WALL PACK FOR GENERAL LIGHTING AT MECHANICAL EQUIPMENT AREAS	BY ARCHITECT	LED	1660	80	4000 K	LIGMAN	ULEW-30011-14W LED-T4-W40-FINISH-120/277V	INTEGRAL ELECTRONIC	-	277 V	14.0 W	WALL	7'-6"	

A. FURNISH ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING ACCESSORIES TO MEET JOB REQUIREMENTS. VERIFY FIXTURE MOUNTING AND LOCATION AGAINST ARCHITECTS PLANS, ELEVATIONS AND DETAIL DRAWINGS. EXACT LOCATION OF ALL FIXTURES SHALL BE CONFIRMED WITH THE ARCHITECT PRIOR TO ROUGHING IN.
B. ALL FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, INDEPENDENT OF HUNG CEILING WITH ROD OR JACK CHAIN SUPPORT. STEM LENGTHS, STEM FINISHES AND STEM LOCATIONS OF ALL PENDANT FIXTURES TO BE VERIFIED AND CONFIRMED BY OWNER, ARCHITECT AND ENGINEER PRIOR TO ORDERING STEMS.
C. DIMMABLE DRIVERS SHALL BE COMPATIBLE WITH LED FIXTURES AND DIMMERS.
D. ALL LIGHT FIXTURES ARE TO BE PROVIDED BY SPECIFIED MANUFACTURER OR APPROVED EQUAL. "ALTERNATE MANUFACTURER" AND "OR APPROVED EQUAL" MEAN EQUIVALENT OR SUPERIOR IN PERFORMANCE, MATERIALS, WORKMANSHIP AND APPEARANCE TO THE SPECIFIED EQUIPMENT.
E. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE COORDINATION OF ALL LIGHTING EQUIPMENT AND CONTROL DEVICES WITH WALL TYPES SPECIFIED PRIOR TO ORDERING LIGHTING EQUIPMENT.
F. PRELIMINARY AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE DURING INSTALLATION BY THE ELECTRICAL CONTRACTOR. FINAL AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE BY THE ELECTRICAL CONTRACTOR AS DIRECTED BY THE ARCHITECT AND LIGHTING DESIGNER.
G. ENSURE ALL LUMINAIRES ARE PROVIDED WITH DRIVERS AND LED BOARDS THAT ARE FIELD-REPLACEABLE.

LIGHTING CONTROL SEQUENCE OF OPERATION

ROOM #	ROOM NAME	CONTROL ZONE	FIXTURE TYPE	FIXTURE DESCRIPTION	OCCUPANCY SENSOR			TIMECLOCK	DAYLIGHT CONTROL	WALLSTATIONS	NOTES
					ON OPERATION	OFF OPERATION	TIMEOUT				
101	MEETING ROOM	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	YES, SEE PLANS	ON - OFF - DIM	
102	SHARED	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
103	MEETING ROOM	a	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM SINGLE STATION PER ZONE, SEE PLANS	
		b	L3	1X4 TROFFER							
104	MEETING ROOM	a	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM SINGLE STATION PER ZONE, SEE PLANS	
		b	L3	1X4 TROFFER							
105	MEETING ROOM	a	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM SINGLE STATION PER ZONE, SEE PLANS	
		b	L3	1X4 TROFFER							
106	MEETING ROOM	a	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM SINGLE STATION PER ZONE, SEE PLANS	
		b	L3	1X4 TROFFER							
107	MEDIA	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	OCCUPANCY SENSOR SWITCH	
108	MEDIA	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	OCCUPANCY SENSOR SWITCH	
109	MEDIA	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	OCCUPANCY SENSOR SWITCH	
130 V101 V102	EXHIBITION & VESTIBULES	aa	L1	RECESSED LINEAR	N/A	N/A	N/A	YES	YES, SEE PLANS	ON - OFF - DIM SINGLE STATION PER ZONE, SEE PLANS	NOTE THAT THE LT/L4 TRACK LIGHTING IS EXEMPT FROM DAYLIGHT CONTROL. THIS WILL NOT DIM WITH THE PHOTOCELL CONTROL. THESE ARE CONTROLLED BY LOW VOLTAGE DIMMERS FOR SWITCHLEG cc & dd. SEE ALSO LIGHTING CONTROL NOTE K.
		bb	L2	RECESSED LINEAR							
		cc	LT / L4	TRACK LIGHTING							
		dd	LT / L4	TRACK LIGHTING							
-	STAIRS	ee	L1	RECESSED LINEAR	N/A	N/A	N/A	YES	NO	NONE	
132	ADMIN	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
133	ADMIN	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
134	SHARED	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	YES, SEE PLANS	ON - OFF - DIM	
138	STORAGE	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
157	ASBY SERV	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
158	ASBY SERV	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
159	LOUNGE	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
161	WOMEN'S RR VESTIBULE	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
162	ASBY SERV	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
163	ASBY SERV	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
164	MENS RR VESTIBULE	*	L3	1X4 TROFFER	MANUAL	AUTO	20 MIN	NO	NO	ON - OFF - DIM	
-	MECH ROOF	N/A	S5	WALL PACK	N/A	N/A	N/A	NO	NO	WEATHERPROOF SWITCH	

A. EC TO PROVIDE ALL STARTUP REQUIRED TO ASSURE EQUIPMENTS PERFORMS TO SEQUENCE OF OPERATIONS AS NOTED HEREIN. CONFIRM ADDITIONAL CONTROL PROGRAMMING REQUIREMENTS WITH OWNER AS APPLICABLE.
B. ROOM TYPES INDICATED HEREIN ARE INTENDED TO MATCH ALL INCLUDED ROOM TYPES.
C. NOTIFY ARCHITECT / ENGINEER / OWNER IF ANY ADDITIONAL CLARIFICATION IS REQUIRED PRIOR TO STARTUP.
D. REFER TO PLANS FOR KEYED ZONING BY LOWERCASE LETTER.
E. WHERE ZONING IS INDICATED WITH " * ", ONLY ONE ZONE IS REQUIRED AND IS THEREFORE NOT LABELED.
F. WHERE ZONING IS INDICATED WITH DOUBLE LETTERS ("aa", "bb", "cc", "dd"), TIMECLOCK CONTROL SHALL BE PROVIDED.

LIGHTING CONTROL NOTES

A. REFER TO THE LIGHTING PLANS AND SPECIFICATIONS FOR CONTROL INTENT. DEVICES SHOWN IN ELECTRICAL DRAWINGS ARE TO AID IN ARCHITECTURAL COORDINATION, AND TO CONCEPTUALLY INDICATE THE CONTROL INTENT. NOT ALL DEVICES AND EQUIPMENT ARE SHOWN. PROVIDE LOAD CONTROLLERS AND OTHER INTERFACES AS REQUIRED PER THE VENDOR SHOP DRAWINGS.

B. BASIS OF DESIGN IS A COOPER GREENGATE ROOM CONTROLLERS WITH LIGHTING CONTROL PANEL FOR TIMECLOCK FUNCTIONALITY. ELECTRICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW.

C. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE LIGHTING CONTROL VENDOR AND LUMINAIRE VENDOR(S) SUCH THAT ALL REQUIRED CONTROL COMPONENTS AND ASSOCIATED PROGRAMMING ARE/IS PROVIDED AS NECESSARY IN ORDER TO MEET THE FUNCTIONAL CONTROL INTENT SPECIFIED IN THIS DESIGN PACKAGE.

D. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROL VENDOR TO DETERMINE WHERE ROOM CONTROLLERS, LIGHTING CONTROL PANEL, AND OTHER DEVICES WILL BE LOCATED, AND PROVIDE 120V POWER AS REQUIRED.

E. PROVIDE 0-10V TO ELV CONVERTER FOR DIMMING OF TRACK LIGHTING.

F. INITIAL SYSTEM PROGRAMMING TO BE PERFORMED BY A TRAINED TECHNICIAN. TECHNICIAN TO TRAIN OSU FACILITIES TO MAINTAIN AND MAKE PROGRAMMING CHANGES TO THE SYSTEM. THE SYSTEM SHALL BE CONNECTED TO THE OSU NETWORK.

G. REFER TO SEQUENCE OF OPERATIONS FOR INITIAL PROGRAMMING OF CONTROLS.

H. THE QUANTITY OF OCCUPANCY/VACANCY SENSORS REQUIRED AND THEIR EXACT LOCATIONS SHALL BE DETERMINED BY THE LIGHTING CONTROL VENDOR. SENSORS HAVE BEEN SHOWN ON LIGHTING CONTROL PLANS ONLY TO CONVEY THAT THE ZONES THEY APPEAR IN REQUIRE OCCUPANCY/VACANCY SENSING.
   a. EXAMPLE 1: IF A RESTROOM ONLY REQUIRES ONE OCCUPANCY SENSOR FOR COMPLETE COVERAGE, ONLY ONE OCCUPANCY SENSOR IS REQUIRED.
   b. EXAMPLE 2: IF ADDITIONAL OCCUPANCY SENSORS ARE REQUIRED TO PROVIDE FULL COVERAGE TO AN OPEN OFFICE SPACE, THEY SHALL BE ADDED AS NEEDED.

I. THE QUANTITY OF DAYLIGHT SENSORS REQUIRED AND THEIR EXACT LOCATIONS SHALL BE DETERMINED BY THE LIGHTING CONTROL VENDOR. SENSORS HAVE BEEN SHOWN ON LIGHTING CONTROL PLANS ONLY TO CONVEY THAT FIXTURES WITHIN THE ADJACENT PRIMARY AND SECONDARY DAYLIGHT ZONES REQUIRE DAYLIGHT DIMMING. WHERE DAYLIGHT ZONES INTERSECT FIXTURES ON THE PLANS, THOSE FIXTURES SHALL BE PROVIDED WITH DAYLIGHT DIMMING.

J. LIGHT FIXTURES SHOWN WITH EMERGENCY HATCHING SHALL BE PROVIDED WITH BATTERY BACKUP AND SHALL BE CONTROLLED IN THE SAME MANNER AS NORMAL-POWERED LIGHTS IN SAME AREA.

K. TRACK LIGHTING IS EXEMPT FROM DAYLIGHTING REQUIREMENTS PER ASHRAE 90.1-TABLE 9.2.3.1, ITEM #11, AS IT IS CONSIDERED DISPLAY OR ACCENT LIGHTING THAT IS AN ESSENTIAL ELEMENT FOR THE FUNCTION PERFORMED IN GALLERIES, MUSEUMS, AND MONUMENTS.

bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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GLUMAC
900 SW 5th Ave, Suite 1600
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OREGON
JUNE 2, 2017
PAUL B. LEONETTI

LUMINAIRE SCHEDULE AND CONTROLS BOD

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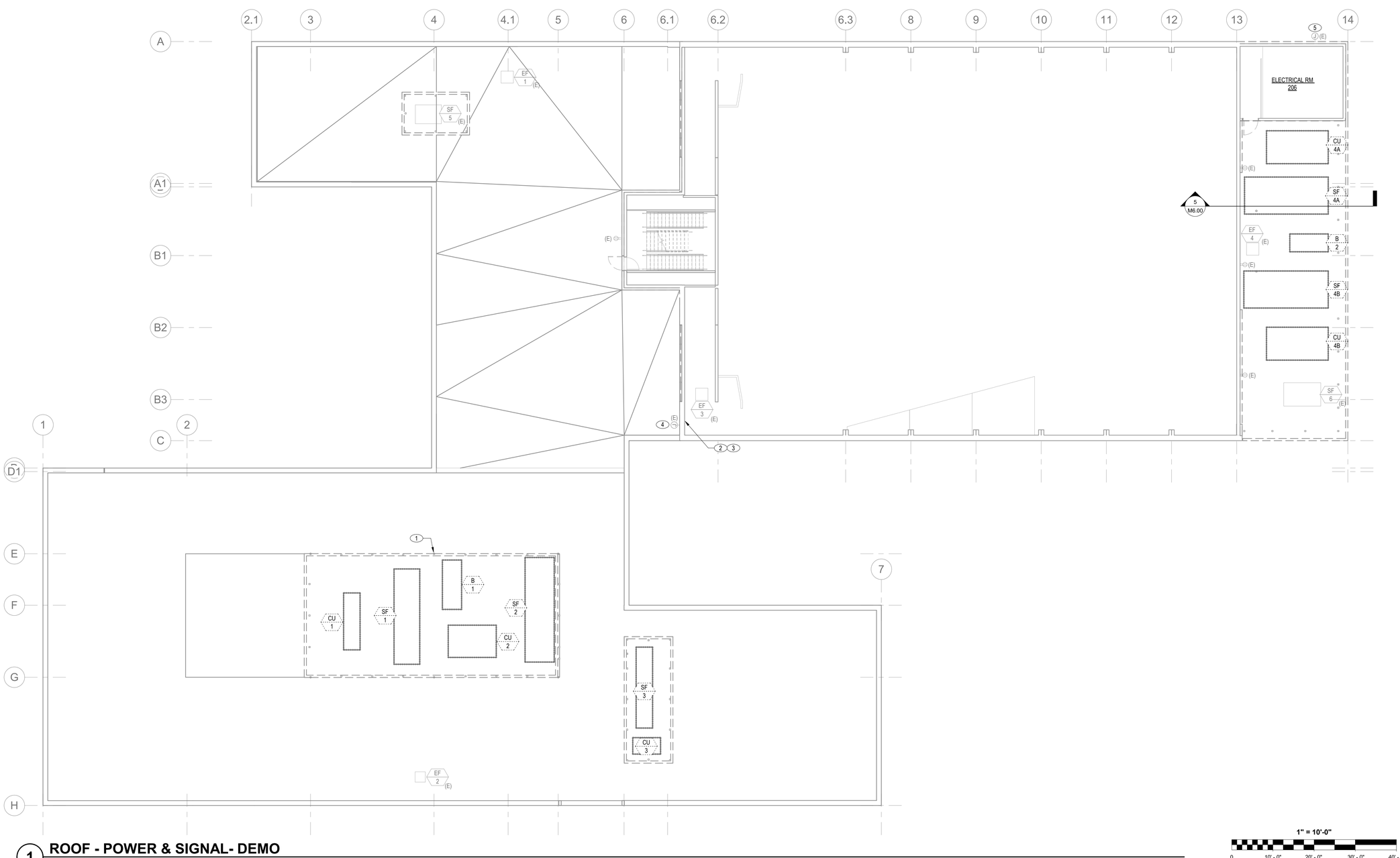
GENERAL NOTES

A. REFER TO ARCHITECTURAL DRAWINGS FOR FULL EXTENT OF DEMOLITION
B. REFER TO SPECIFICATIONS FOR ADDITIONAL DEMOLITION SCOPE OF WORK.
C. ROOF TO BE REPLACED. WHERE EXISTING TO REMAIN EQUIPMENT IS LOCATED ON ROOF REMOVE CONDUITS AND ASSOCIATED ELECTRICAL EQUIPMENT AND REPLACE AT COMPLETION OF ROOF INSTALL.
D. EXISTING ELECTRICAL DEVICES AT FACADE TO BE REMOVED AND REPLACED AT COMPLETION OF INSTALL.
   1. ALL EXISTING EXTERIOR OUTLETS IMPACTED BY SIDING AND ROOF WORK SHALL BE REPLACED AND PROVIDED WITH WEATHERPROOF COVER.
E. FOR WALLS, SOFFITS, CASEWORK, ISLANDS, CEILINGS, ETC. SHOWN TO BE DEMOLISHED REMOVE THE FOLLOWING:
   1. TELECOM OUTLET BOXES AND RACEWAYS, COORDINATE CABLE REMOVAL WITH GENERAL CONTRACTOR AND OWNER.
   2. POWER OUTLETS, WIREMOLD, RECEPTACLES AND ALL OTHER ELECTRICAL DEVICES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   3. LIGHT SWITCHES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   4. FIRE ALARM AND OTHER LOW-VOLTAGE DEVICES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   5. ALL J-BOXES ON EXPOSED CEILINGS AND WALLS, REWORK CONDUIT AND WIRING IF CIRCUIT CONTAINED OR USED IN J-BOX SERVES EXISTING TO REMAIN LIGHTING OR DEVICES, RELOCATE J-BOX AS REQUIRED TO ABOVE ACCESSIBLE CEILING. INTENT IS TO HAVE NO BLANK COVERPLATES ON FINISHED SURFACES AT COMPLETION OF PROJECT.
   6. EXISTING LUMINAIRES, INSTALL NEW LUMINAIRES IN THE NEW SCOPE OF WORK, EXISTING CONDUIT AND WIRING TO REMAIN IF IN GOOD CONDITION.
   7. ALL EXIT SIGNS, LEAVE EXISTING CONDUIT AND WIRING, WHERE APPROPRIATE, THAT IS LOCATED ABOVE CEILINGS, INTENT IS TO KEEP EXISTING EMERGENCY POWER SYSTEM WIRING AND REUSE EXIT SIGNS IN SAME LOCATION, WHERE POSSIBLE.
F. FOR WALL, COLUMNS, CASEWORK, SOFFITS, ISLANDS, ETC. SHOWN EXISTING TO REMAIN PERFORM THE FOLLOWING:
   1. OPEN WALL AS REQUIRED TO ALLOW FOR INSTALLATION IN NEW SCOPE OF WORK.
   2. REMOVE RECEPTACLES AND COVERPLATES, INSTALL NEW DEVICES AND COVERPLATES IN THE NEW SCOPE OF WORK, EXISTING CONDUIT AND WIRING TO REMAIN IF IN GOOD CONDITION. CONDUIT IS CONSIDERED IN GOOD CONDITION IF IT IS FREE OF DAMAGE OR ANY PINCHED POINTS. CONDUCTORS ARE CONSIDERED IN GOOD CONDITION IF THERE IS NO DAMAGE TO INSULATION, HAVE BEEN TESTED FOR CONTINUITY AND THERE HAVE BEEN NO SPLICED POINTS.
   3. REMOVE LIGHT SWITCHES AND COVERPLATES. INSTALL NEW DEVICES AND COVERPLATES IN THE NEW SCOPE OF WORK. EXISTING CONDUIT AND WIRING TO REMAIN IF IN GOOD CONDITION.
   4. FOR LIGHT SWITCHES THAT SERVE EXISTING LIGHTING TO BE REMOVED, REMOVE LIGHT SWITCHES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   5. REMOVE FIRE ALARM DEVICES AND COVERPLATES WHERE REQUIRED FOR NEW SCOPE OF WORK. THE INTENT IS TO REUSE EXISTING DEVICES IF THEY ARE STILL IN WORKING ORDER AND MEET THE CURRENT CODE REQUIREMENTS. REFER TO FIRE ALARM DESIGN BUILD DRAWINGS FOR ADDITIONAL DETAILS.
   6. REMOVE EXIT SIGNS, EXISTING J-BOX AND CONDUIT TO REMAIN.
G. WHERE REMODELING INTERFERES WITH EXISTING CIRCUITS AND EQUIPMENT WHICH IS NOT TO BE REMOVED. SUCH CIRCUITS AND EQUIPMENT SHALL BE REWORKED AND RELOCATED AS REQUIRED TO MAINTAIN SERVICE TO ITEM. REFER ALL QUESTIONABLE SITUATIONS TO THE ENGINEER. DO NOT LOCATE J-BOXES ON WALLS, EXCEPT ONES REQUIRED TO MOUNT THE ITEM. I.E. AT THE COMPLETION OF THE PROJECT THERE SHALL BE NO J-BOXES WITH BLANK COVERPLATES ON WALLS OR CEILINGS, THE PROJECT SHALL APPEAR AS NEW CONSTRUCTION.
H. REMOVE ALL EXISTING BRANCH CIRCUIT CONDUCTORS AND CONDUITS ASSOCIATED WITH REMOVED ELECTRICAL EQUIPMENT AND DEVICES BACK TO THE EXISTING HOMERUN FROM WHICH THEY ARE FED OR THE NEAREST ACTIVE DEVICE THAT IS TO REMAIN. REMOVE ALL OLD TYPE WIRING IF IT IS NOT RATED FOR 90°C.
J. IF POSSIBLE, EXISTING BRANCH CIRCUIT HOMERUN CONDUITS AND WIRES ARE TO REMAIN AND BE REUSED IN THE NEW CONSTRUCTION PHASE OF WORK. DOWNSTREAM BRANCH CIRCUIT CONDUITS AND WIRING SERVING EXISTING-TO-BE-REMOVED EQUIPMENT, RECEPTACLES AND LUMINAIRES ARE TO BE REMOVED. INTENT IS TO REUSE THE MAIN INFRASTRUCTURE AND REMOVE ALL THE BRANCH CIRCUITING THAT WILL NO LONGER BE USED. REMOVE EXISTING HOMERUNS BACK TO PANEL IF THEY WILL NOT BE USED AT THE COMPLETION OF THE PROJECT.
K. CONTRACTOR SHALL VERIFY CIRCUITS WITH TRACING DEVICE AND LABEL CIRCUITS AVAILABLE AT EACH J-BOX, MODIFY DRAWINGS AS REQUIRED TO DOCUMENT ACTUAL CIRCUITING.
L. DO NOT REMOVE ANY CONDUITS SERVING EXISTING TO REMAIN ITEMS, ESPECIALLY TO;
   1. FAN POWERED BOXES AND OTHER MECHANICAL EQUIPMENT TO REMAIN. REFER TO MECHANICAL DRAWINGS FOR SCOPE OF WORK.
   2. PANELS, DISTRIBUTION PANELS, TRANSFORMERS, ETC., UON.
   3. HVAC CONTROLS AND CONTROL PANELS, UNLESS THE PIECE OF HVAC EQUIPMENT IS TO BE REMOVED. REFER TO MECHANICAL DRAWINGS AND SPECS. FOR SCOPE OF WORK.
   4. CONDUITS AND J-BOXES TO FIRE ALARM DEVICES ON EXISTING TO REMAIN WALLS.
   5. BRANCH CIRCUIT WORK SERVING THE EXISTING CORE AND EXTERIOR LIGHTING.
   6. DOOR HOLDERS, ROLL-DOWN FIRE DOORS, ROLL-UP DOORS AND THEIR ASSOCIATED POWER AND CONTROL WIRING, UON.
   7. EXTERIOR LIGHTING AND ASSOCIATED LIGHTING CONTROL WIRING.
   8. CONTROL, POWER WIRING AND TELECOM WIRING ASSOCIATED WITH ALL ELEVATORS.
   9. SECURITY DEVICES, EQUIPMENT, CONDUIT AND WIRING, UON.
M. DO NOT REMOVE ANY TELECOM INFRASTRUCTURE, I.E. CONDUITS CONNECTING TELECOM CLOSETS, CABLE TRAYS, BRIDAL RINGS IN AREAS THAT WILL BE ABOVE SUSPENDED CEILINGS.
N. ALL SALVAGED 2'X4' LUMINAIRES IF NOT REUSED IN NEW CONSTRUCTION SHALL BECOME THE PROPERTY OF THE OWNER UNLESS OWNER DIRECTS OTHERWISE, IF NOT TO BE RETAINED THEN THEY SHALL BECOME THE CONTRACTORS PROPERTY AND SHALL BE REMOVED FROM THE JOB SITE.
O. ALL REMOVED ELECTRICAL MATERIAL INCLUDING WIRING, RACEWAYS, OUTLETS, DEVICES, SUPPORTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE JOB SITE.
P. ALL SALVAGED LUMINAIRES, EXIT SIGNS, PANELS, DISTRIBUTION PANELS, TRANSFORMERS, AND POWER BUSWAY SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER TO OWNER'S STORAGE SITE. IF NOT TO BE RETAINED THEN THEY SHALL BECOME THE PROPERTY OF THE OWNER UNLESS OWNER DIRECTS OTHERWISE.
Q. COORDINATE STORAGE LOCATION AND PROTECTION OF SALVAGED LUMINAIRES THAT ARE TO BE REUSED WITH GENERAL CONTRACTOR.
R. DAMAGE TO OTHER TRADE'S WORK AS A RESULT OF THIS WORK IS TO BE PROMPTLY REPAIRED AT NO EXPENSE TO THE OWNER AND TO THE COMPLETE SATISFACTION OF THE OWNER.
S. CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMISSION OF BID AND FIELD VERIFY ALL EXISTING CONDITIONS AND THE EXTENT OF THE DEMOLITION WORK. ALL ASSOCIATED DEMOLITION COSTS SHALL BE INCLUDED IN THE BID PRICE. NO EXTRA PAYMENT WILL BE ALLOWED FOR WORK REQUIRED BECAUSE OF DISCERNIBLE CONDITIONS, WHETHER OR NOT SPECIFICALLY SHOWN ON THESE DRAWINGS.
T. THE EXISTING BUILDING INCLUDING PORTIONS OF THE RENOVATED AREA SHALL REMAIN IN SERVICE DURING THE CONSTRUCTION PHASE OF THIS PROJECT. ANY MODIFICATIONS TO THE EXISTING ELECTRICAL SYSTEMS THAT MAY REQUIRE THE TEMPORARY INTERRUPTION OF EXISTING SERVICES SHALL BE COMPLETED AFTER NORMAL WORKING HOURS. PRE-SCHEDULE ANY SERVICE INTERRUPTIONS WITH THE OWNER PRIOR TO STARTING ANY WORK. DO NOT DISTURB THE EXISTING TENANTS IN THE EXISTING BUILDING WITHOUT WRITTEN AUTHORIZATION.
U. UTILITY OUTAGES: NOT LESS THAN TEN (10) WORKING DAYS PRIOR TO A REQUIRED UTILITY (POWER, TELE, NET) OUTAGE, NOTIFY AND OBTAIN APPROVAL IN WRITING OF SAID OUTAGE FROM THE FACILITY. NO OUTAGE SHALL BE ACCOMPLISHED PRIOR TO THE RECEIPT OF APPROVAL. CONTRACTOR SHALL LOCK-OUT AND RED-TAG THE APPROPRIATE CIRCUIT BREAKER, SWITCH, ETC. RED-TAG SHALL INDICATE WHEN THE OUTAGE WILL BE TERMINATED, AND A TELEPHONE NUMBER TO CONTACT REGARDING THIS OUTAGE. THE TAG SHALL ALSO WARN PEOPLE NOT TO RE-ENERGIZE THE CIRCUIT SYSTEM BECAUSE OF POTENTIAL DANGER TO PERSONNEL AND EQUIPMENT. ALL WORK ASSOCIATED WITH ANY POWER OUTAGES SHALL BE COMPLETED AFTER NORMAL WORKING HOURS.
V. EXISTING WIRING WHERE SHOWN ON THE DRAWINGS IS BASED ON AVAILABLE AS-BUILT DRAWINGS AND FIELD INFORMATION. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS.

KEYED NOTES (#)

1. (E) PANEL MOUNTED TO STRUCTURAL POST TO BE DEMOLISHED.
2. BASE BID: PULL CONDUITS AND CONDUCTORS BACK BELOW THE ROOF AND COME UP AS CLOSE TO EXHAUST FAN AS POSSIBLE.
3. DEDUCT ALTERNATE: PULL CONDUCTORS BACK, CUT CONDUIT AS CLOSE TO BRICK VENEER AS POSSIBLE. EXTEND CONDUIT BACK UP AS CLOSE TO EXHAUST FAN AS POSSIBLE.
4. CONTRACTOR TO RAISE CONDUIT AND BOX AT WALL PENETRATION TO ACCOMMODATE RAISED PARAPET.
5. EXISTING ELECTRICAL ANTENNA DEVICE TO BE REMOVED AND REINSTALLED AT COMPLETION OF INSTALL.



1 ROOF - POWER & SIGNAL- DEMO
SCALE: 1" = 10'-0"

1" = 10'-0"
0 10' - 0" 20' - 0" 30' - 0" 40' - 0"
NORTH

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bassetti architects
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Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area
EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER 78485 OREGON JUNE 2, 2017 PAUL B. LEONETTI

DEMO - ROOF PLAN - POWER

ED1.02

KEYED NOTES (#)

1. REMOVE EXISTING LIGHT SWITCH(ES) AND/OR DIMMER(S), PROVIDING NEW WIRING AS REQUIRED TO AVOID SPLICING, AND PATCH AND PAINT TO REPAIR WALL. NEW TRACK LIGHTING TO BE CONTROLLED VIA NEW LOW VOLTAGE DIMMERS AT TWO NEW LOCATIONS. REFER TO KEYED NOTE 5.
2. REMOVE EXISTING LIGHT SWITCHES, PROVIDING NEW WIRING AS REQUIRED TO AVOID SPLICING, AND PATCH AND PAINT TO REPAIR WALL. NEW OVERHEAD LIGHTING TO BE CONTROLLED VIA NEW LOW VOLTAGE DIMMER. REFER TO KEYED NOTE 6.
3. REMOVE EXISTING LIGHT SWITCH CONTROLLING OVERHEAD LIGHTING AT NORTH AREA OF LOBBY. NEW OVERHEAD LIGHTING TO BE CONTROLLED VIA NEW LOW VOLTAGE DIMMER AT TWO NEW LOCATIONS. REFER TO KEYED NOTE 7.
4. REMOVE EXISTING LIGHT SWITCH CONTROLLING OVERHEAD LIGHTING AT SOUTH AREA OF GALLERY. NEW OVERHEAD LIGHTING TO BE CONTROLLED VIA NEW LOW VOLTAGE DIMMER AT TWO NEW LOCATIONS. REFER TO KEYED NOTE 7.
5. INSTALL NEW LOW VOLTAGE DIMMER TO CONTROL NEW TRACK LIGHTING.
6. INSTALL NEW LOW VOLTAGE DIMMER TO CONTROL ALL NEW LIGHTING SHOWN WITHIN ROOM.
7. INSTALL NEW LOW VOLTAGE DIMMER TO CONTROL ALL NEW OVERHEAD LIGHTING AT BOTH NORTH AND SOUTH AREAS OF LOBBY.
8. TRACK TO BE WALL-MOUNTED.
9. LIGHTING AT INTERMEDIATE LANDING LEVEL.
10. ALL RUNS OF TYPE L1 FIXTURES SHALL READ AS A CONTINUOUS ROW.

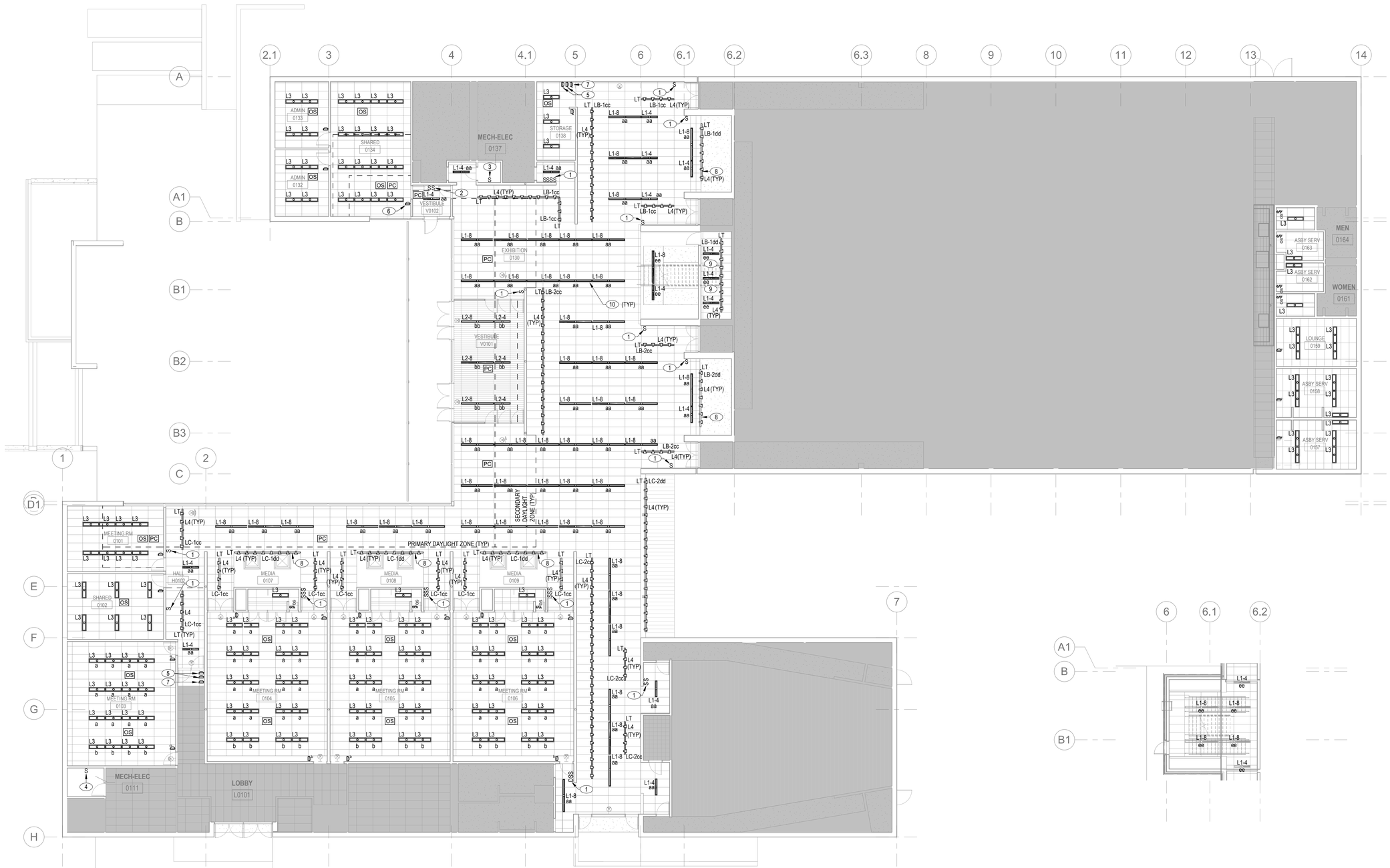
GENERAL NOTES

A. CIRCUIT ALL NEW LIGHTING TO THE EXISTING LIGHTING CIRCUIT, UNLESS OTHERWISE NOTED. REUSE EXISTNG CIRCUITS AND FEEDERS WHERE POSSIBLE. EXISTING CONDUIT AND WIRING TO REMAIN IF IN GOOD CONDITION. CONDUIT IS CONSIDERED IN GOOD CONDITION IF IT IS FREE OF DAMAGE OR ANY PINCHED POINTS. CONDUCTORS ARE CONSIDERED IN GOOD CONDITION IF THERE IS NO DAMAGE TO INSULATION, HAVE BEEN TESTED FOR CONTINUITY AND THERE HAVE BEEN NO SPLICED POINTS.

B. REFER TO LIGHTING PLANS AND PANEL SCHEDULES FOR TRACK LIGHTING CIRCUITING.

C. ALL NEW LOW VOLTAGE SWITCHES AND DIMMERS ARE TO REPLACE EXISTING LINE VOLTAGE SWITCHES AT SAME LOCATIONS, UNLESS OTHERWISE NOTED.

D. REMOVE AND REINSTALL EXISTING CEILING-MOUNTED EXIT SIGNS. EXISTING WALL-MOUNTED EXIT SIGNS TO REMAIN IN PLACE. EXIT SIGNS SHOWN ARE PER AS-BUILT DRAWINGS AND SITE VISIT; THEREFORE SOME EXIT SIGNS MAY NOT BE SHOWN.



1 **MAIN LEVEL - FLOOR PLAN - LIGHTING**
SCALE: 1" = 10'-0"

2 **UPPER LEVEL- LANDING AREA - LIGHTING**
SCALE: 1" = 10'-0"

1" = 10'-0"
0 10' - 0" 20' - 0" 30' - 0" 40' - 0"
NORTH

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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
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740 Almaden Street
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Oregon State University

LSC Mech & Roof Renewal

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EXPIRES: 12/31/22
REGISTERED PROFESSIONAL ENGINEER 78483 OREGON JUNE 2, 2017 PAUL B. LEONETTI
Digitally signed by Paul Leonetti

MAIN LEVEL PLAN - LIGHTING

E2.01

KEYED NOTES (#)

1. EXISTING LIGHT FIXTURE LOCATION. REMOVE AND REINSTALL AT SAME HEIGHT.
2. NEW LIGHT FIXTURE LOCATION.
3. VERIFY THAT ACTUAL LOCATION OF FIXTURE IN FIELD DOES NOT CONFLICT WITH LADDER LOCATION. IF CONFLICT EXISTS, ADJUST LOCATION OF FIXTURE TO AVOID CONFLICT WITH LADDER. CONFIRM EXACT LOCATION WITH ARCHITECT.
4. CONTRACTOR TO REMOVE AND REPLACE SURFACE MOUNTED CONDUIT TO EXISTING TO REMAIN LIGHT FIXTURE AT COMPLETION OF INSTALL.
5. EXISTING LIGHT FIXTURE LOCATION. REPLACE WITH NEW FIXTURE AS INDICATED.
6. EXISTING LIGHT FIXTURE, SHOWN FOR REFERENCE ONLY.
7. CIRCUIT NEW LIGHTING FIXTURE TO NEAREST CONVENIENCE RECEPTACLE CIRCUIT.

GENERAL NOTES

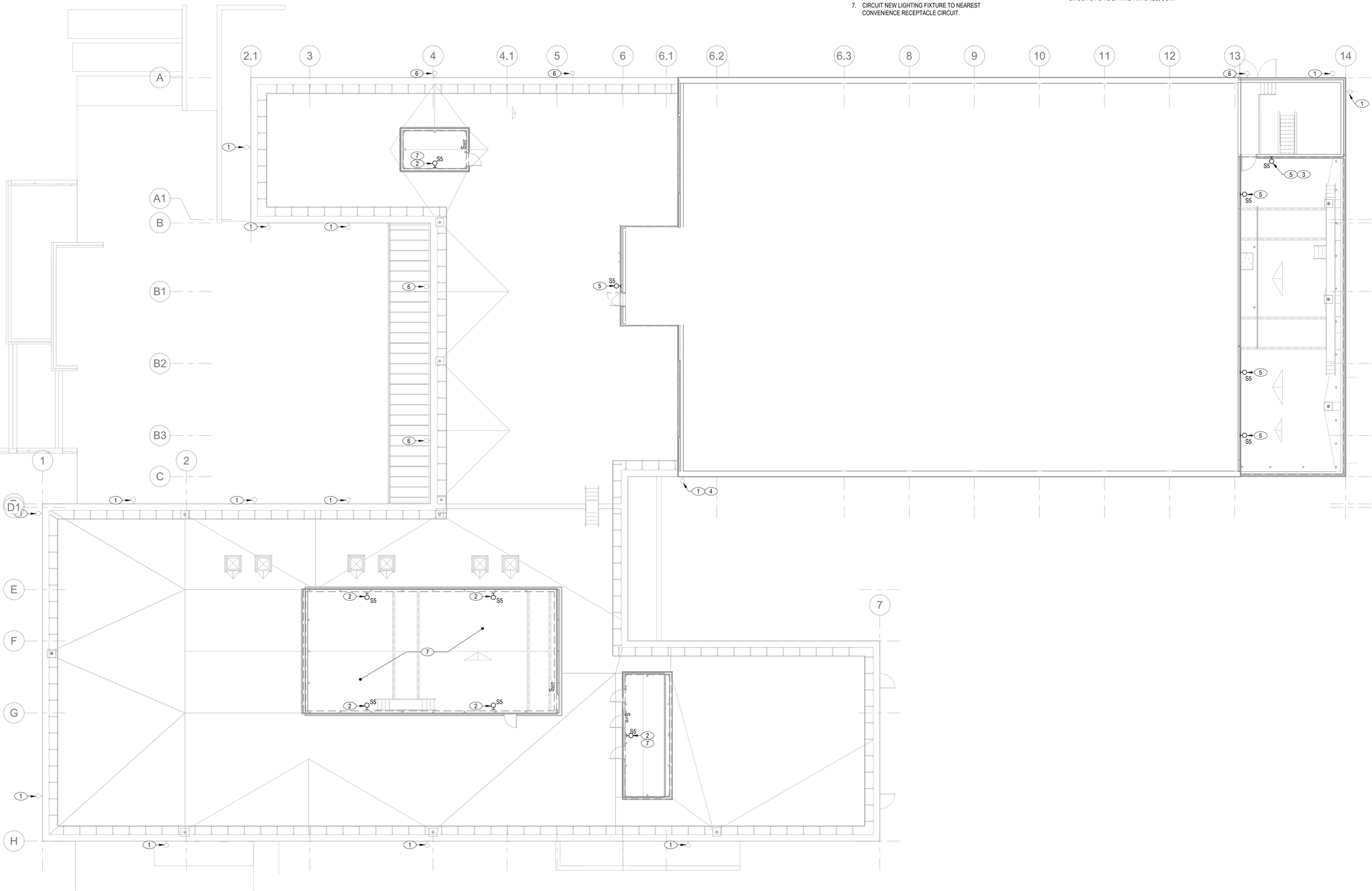
A. LIGHTING SCOPE INCLUDES THE FOLLOWING:
   a. REPLACEMENT OF EXISTING FIXTURES AT SAME LOCATIONS. LOCATIONS SHOWN ON DRAWINGS ARE DIAGRAMMATIC AND ARE BASED ON AS-BUILT DRAWINGS AND PHOTOS OF SITE.
   b. NEW FIXTURES AT MECHANICAL EQUIPMENT SPACES.

B. CONTRACTOR SHALL SURVEY THE EXISTING CONDITIONS AND CONFIRM QUANTITIES AND EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL FIXTURES TO BE REPLACED PRIOR TO BID.

C. ALL FINISHES, WALLS, AND STRUCTURES IMPACTED BY REPLACEMENT OF FIXTURES SHALL BE RESTORED TO MATCH THE EXISTING CONDITIONS, INCLUDING ANY PATCHING AND PAINTING.

D. DEMOLISH AND REPLACE EXISTING FEEDERS TO ALL LIGHTING FIXTURES BEING REPLACED. UTILIZE EXISTING CIRCUITS FOR LIGHTING FIXTURES, UON.

E. CONTROL METHOD SHALL REMAIN IN-PLACE. EXISTING CONTROLS ARE UNDERSTOOD TO BE VIA ASTRONOMICAL TIMECLOCK, OCCUPANCY SENSOR, OR PHOTOCELL.



1 SITE AND ROOF PLAN - LOWER LEVEL- LIGHTING

SCALE: 1" = 10'-0"

1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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GLUMAC
900 SW 5th Ave, Suite 1600
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REGISTERED PROFESSIONAL ENGINEER
78483
OREGON
JUNE 2, 2017
NEIL B. LEONETTI

ROOF PLAN - LOWER LEVEL - LIGHTING

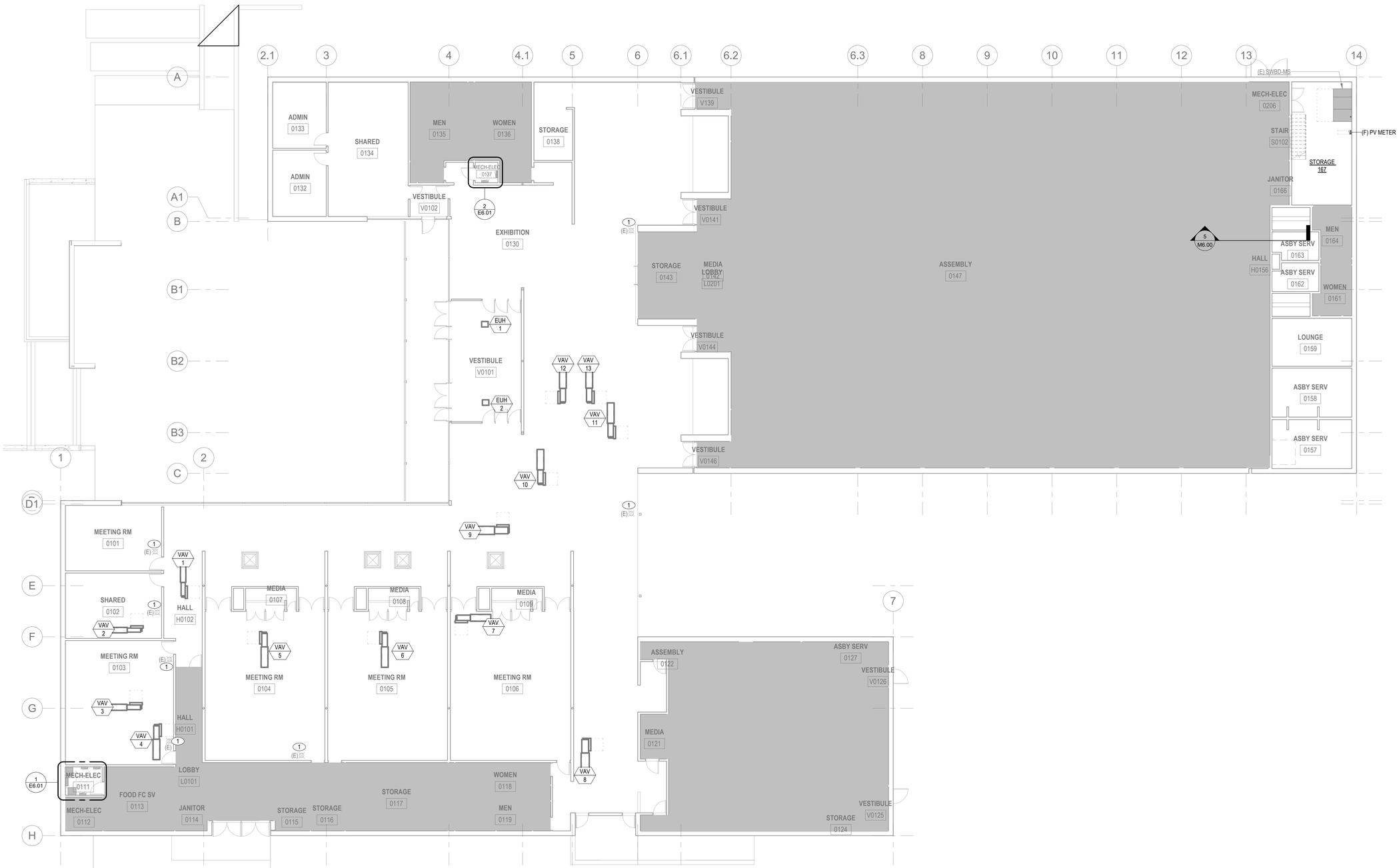
E2.02

GENERAL NOTES

A. WHERE CEILING IS BEING REPLACED, REMOVE EXISTING FIRE ALARM DEVICES AND RE-INSTALL AT COMPLETION OF CEILING INSTALL. EXISTING FIRE ALARM DEVICES TO BE REUSED IF POSSIBLE.

KEYED NOTES

1. REMOVE EXISTING CEILING MOUNTED RECPETACLE DURING CEILING REPLACEMENT AND INSTALL AT COMPLETION OF CEILING INSTALL. CEILING RECEPTACLE TO BE INSTALLED WITH STAINLESS STEEL COVER PLATE.



1 MAIN LEVEL - FLOOR PLAN - POWER & SIGNAL

SCALE: 1" = 10'-0"

1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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REGISTERED PROFESSIONAL ENGINEER 75483 OREGON JUNE 2, 2017 PAUL B LEONETTI

MAIN LEVEL - POWER

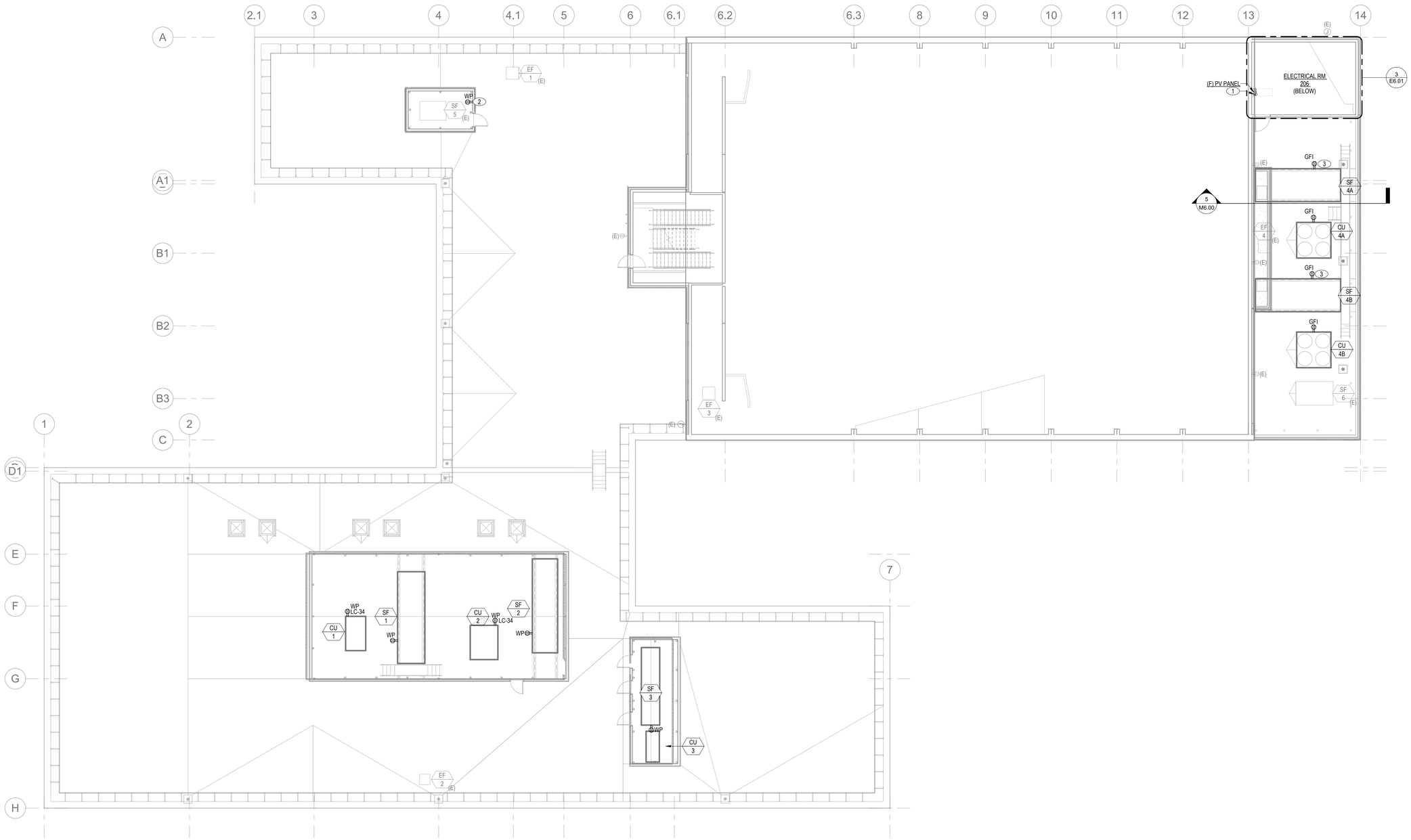
E3.01

GENERAL NOTES

A. REPLACE ALL DISCONNECTS, FEEDERS AND BREAKERS FEEDING MECHANICAL EQUIPMENT THAT IS BEING REPLACED WITH NEW UNIT.
B. REFER TO DETAIL DRAWINGS FOR ADDITIONAL INFORMATION. ALL DETAILS APPLY FOR ALL APPLICABLE SITUATIONS WHETHER REFERENCED OR NOT, UON.
C. WHERE POSSIBLE DO NOT ROUTE CONDUIT ON ROOF. RUN ALL HORIZONTAL CONDUIT BELOW ROOF AND STUB UP. TYPICAL FOR NEW RECEPTACLES AND WHERE POSSIBLE FOR MECHANCIAL EQUIPMENT.
D. REFER TO MECHANICAL DRAWINGS FOR MOUNTING AND EQUIPMENT DETAILS.
E. ALL EXTERIOR MOUNTED EQUIPMENT AND CONDUIT SHALL BE WEATHERPROOF RATED, MINIMUM NEMA 3R.
F. ROUTE ALL CONDUITS UP THROUGH EQUIPMENT CURBS. COORDINATE LOCATION TO AVOID CONFLICTS AND ALLOW FOR CODE CLEARANCES AND MAINTENANCE ACCESS.
G. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. THESE DRAWINGS ARE DIAGRAMMATIC.
H. CIRCUIT SIZES ARE NOT SHOWN ON THE PLANS. CONTRACTOR SHALL USE CIRCUIT SIZES INDICATED IN NOTES OR RESPECTIVE SCHEDULES (PNL, MCC, ETC.) AND INFORMATION IN THE FEEDER AND BRANCH CIRCUIT SCHEDULES.
I. EXISTING EXTERIOR OUTLETS IMPACTED BY SIDING AND ROOF WORK TO BE REPLACED WITH NEW. PROVIDE OUTLET WITH WATERPROOF COVER.
J. EXISTING ELECTRICAL DEVICES AT FACADE TO BE REMOVED AND REPLACED AT COMPLETION OF INSTALL.
K. REFER TO SHEE E0.02 FOR ADDITIONAL INFORMATION FOR RECEPTACLES MOUNTED ON MECHANICAL EQUIPMENT.

KEYED NOTES (#)

1. PROVIDE (1) 2" CONDUIT FROM MAIN DISTRIBUTION PANEL IN STORAGE ROOM 167 ON LEVEL 1 TO FUTURE PV PANEL ON ROOF OF ELECTRICAL ROOM 206. ROUTE CONDUIT THROUGH ELECTRICAL ROOM 206 TO REACH FUTURE PANEL LOCATION ON ROOF. PROVIDE (1) 1.5" CONDUIT FOR DATA FROM NEAREST IDF ROOM. CONTRACTOR TO COORDINATE EXACT LOCATION OF STUB WITH ARCHITECT PRIOR TO INSTALLATION.
2. CIRCUIT RECEPTACLE TO NEAREST CONVENIENCE RECEPTACLE CIRCUIT.
3. CIRCUIT RECEPTACLE TO NEXT AVAILABLE 20A SPARE ON PANEL LA.



1 ROOF - POWER & SIGNAL

SCALE: 1" = 10'-0"

1" = 10'-0"

0 10' - 0" 20' - 0" 30' - 0" 40' - 0"

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Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
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Portland, OR 97204
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REGISTERED PROFESSIONAL ENGINEER 78483 OREGON JULY 8, 2011 PAUL B. LEONETTI

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ROOF PLAN - POWER

E3.02

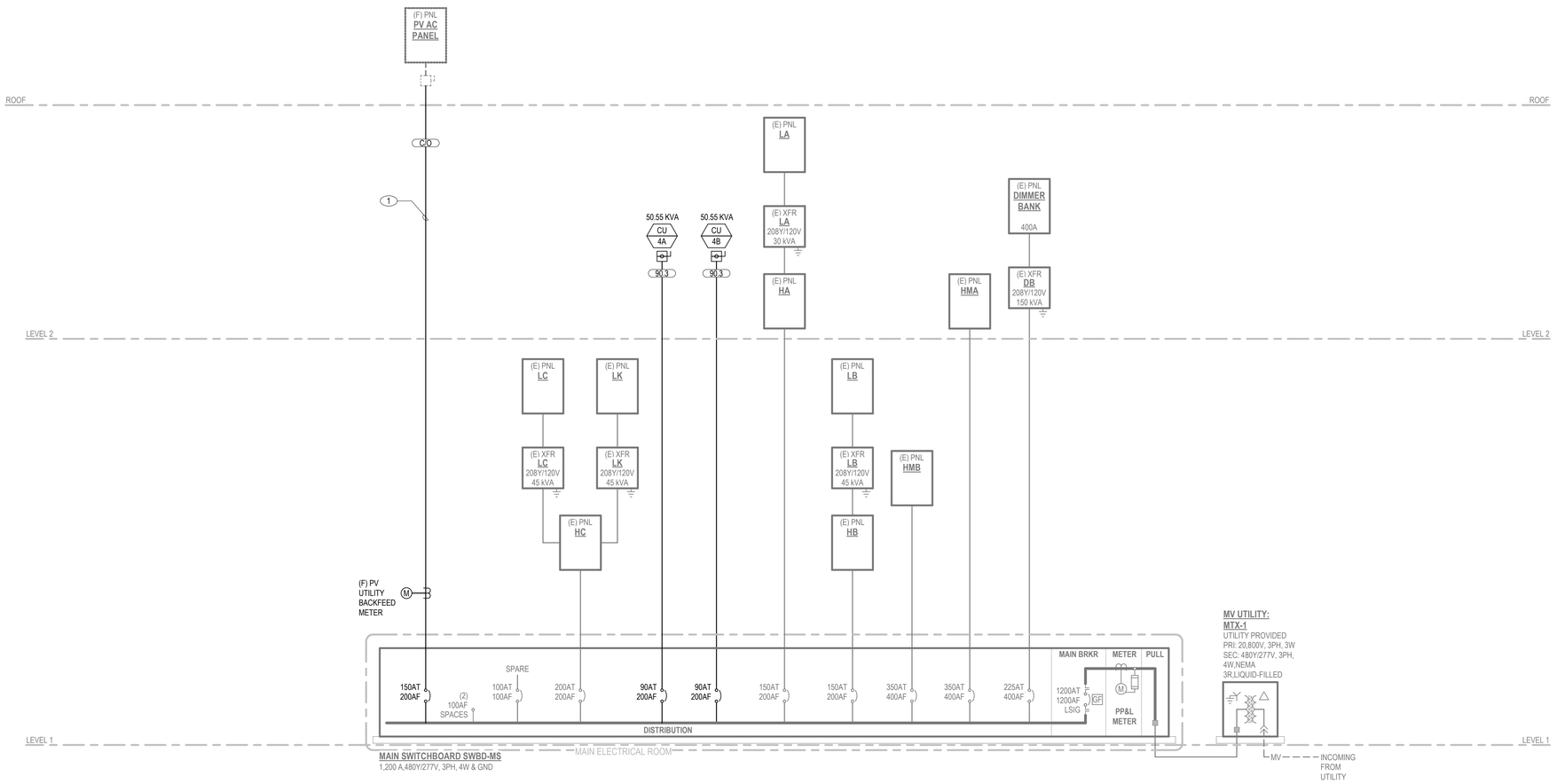
BUILDING ELECTRICAL LOAD SUMMARY: SWITCHBOARD- MS

VOLTAGE: **480Y/277V, 3PH, 4W** | INTEGRAL SPD: **No**
MOUNTING: **PAD** | HINGED PANEL COVER: **Yes** | POWER SOURCE TYPE: **NORMAL**
MAIN AMPS/ TYPE: **1,200 A** | AIC RATING: | LOCATION:
BUS AMPS: **1,200 A** | 100% OR 80% RATED: **80%** | SUPPLY FROM:

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND/ ADJUSTED	LEGEND	PANEL TOTALS		
						KVA	AMPS
C	**532.9 kVA**	**125%**	**666.13 kVA**	R= RECEPTACLE			
D	**0 kVA**	**0%**	**0 kVA**	C= CONTINUOUS	TOTAL CONNECTED LOAD:	**675 kVA**	**812 A**
K	**0 kVA**	**0%**	**0 kVA**	N= NON-CONTINUOUS	TOTAL DEMAND LOAD:	**808 kVA**	**972 A**
L	**0 kVA**	**0%**	**0 kVA**	K= KITCHEN	SPARE CAPACITY :		
M	**0 kVA**	**0%**	**0 kVA**	L= LIGHTING	REQUIRED PANEL CAPACITY:	**808.09 kVA**	**972 A**
				M= MOTOR			
N	**141.96 kVA**	**100%**	**141.96 kVA**	MOTOR = LARGEST...			
R	**0 kVA**	**0%**	**0 kVA**				

GENERAL NOTES:
1. EXISTING LOADS INCLUDED IN THE ABOVE CALCULATION ARE BASED ON A PEAK DEMAND OF 284 AMPS, FROM 2019 METERING INFORMATION PROVIDED BY OREGON STATE UNIVERSITY ON 11/22/2021. PER NEC 220.87, THE CALCULATED DEMAND IS 125% OF THE MEASURED PEAK DEMAND LOAD, RESULTING IN 355 AMPS. THIS RESULTING LOAD HAS BEEN EVENLY DISTRIBUTED ACROSS PHASES A, B, & C FOR CALCULATION PURPOSES.

2. 2019 METERING DATA WAS USED DUE TO THE COVID PANDEMIC REDUCING BUILDING USAGE DURING 2020 AND 2021.



1 SINGLE LINE DIAGRAM
SCALE: 12" = 1'-0"

GENERAL NOTES

A. REFER TO SCHEDULES FOR FEEDER SIZES.
B. REFER TO DETAILS SHEETS FOR GROUNDING DETAILS.
C. ALL COMPONENTS SHALL BE FULLY RATED. SERIES RATED IS NOT ALLOWED.
D. PROVIDE CABLE SUPPORTS FOR CONDUCTORS IN VERTICAL RACEWAYS PER NEC 300.19.

KEYED NOTES (#)

1. PROVIDE (1) 2" CONDUIT FOR POWER TO FUTURE PV EQUIPMENT. PROVIDE (1) 1.5" CONDUIT FOR DATA FROM NEAREST IDF ROOM. REFER TO POWER PLANS FOR EXACT LOCATION. CONDUCTORS, PANELS, AND BREAKERS TO BE PROVIDED BY FUTURE PHASE.

bassetti architects
71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
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Portland, OR 97204
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REGISTERED PROFESSIONAL ENGINEER 78483 OREGON JUNE 2, 2017 ALI B. LEOMITI
Registered Professional Engineer

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ELECTRICAL SINGLE LINE DIAGRAM

E5.01

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SWITCHBOARD- (E) DP-HMA (SECTION 1)

VOLTAGE: 480Y/277V, 3PH, 4W | INTEGRAL SPD: No
MOUNTING: PAD | NEMA RATING: | POWER SOURCE TYPE: NORMAL
MAIN AMPS/ TYPE: 350 A/ | AIC RATING: | LOCATION:
BUS AMPS: 400 A | SUPPLY FROM: SWBD-MS

CKT	CIRCUIT DESCRIPTION	NO.of POLES	LOAD TYPE	FRAME SIZE	TRIP RATING	FEEDER TAG	A	B	C	REMARKS
1	(E) SPACE	3	--	--	--	--	--	--	--	
2	(E) REVERB CURTAIN 1	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
3	(E) SPARE	3	--	15 A	15 A	--	0 kVA	0 kVA	0 kVA	
4	(E) REVERB CURTAIN 1	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
5	(E) SPARE	3	--	15 A	15 A	--	0 kVA	0 kVA	0 kVA	
6	(E) SPARE	3	--	15 A	15 A	--	0 kVA	0 kVA	0 kVA	
7	(E) SPARE	3	--	15 A	15 A	--	0 kVA	0 kVA	0 kVA	
8	(E) MAIN CURTAIN	3	N	20 A	20 A		4.43 kVA	4.43 kVA	4.43 kVA	
9	(E) SUMP PUMP	3	N	20 A	20 A		4.43 kVA	4.43 kVA	4.43 kVA	
10	(D)(NB) SF-4A	3	C	60 A	60 A		8.45 kVA	8.45 kVA	8.45 kVA	
11	(D)(NB) SF-4B	3	C	60 A	60 A		8.45 kVA	8.45 kVA	8.45 kVA	
12	(E) SF-6	3	C	80 A	80 A		17.73 kVA	17.73 kVA	17.73 kVA	
SPECIAL SWITCHBOARD FEATURES:					Total Connected Load:		82.67 kVA	82.67 kVA	82.67 kVA	
					Total Connected Amps:		298.4 A	298.4 A	298.4 A	

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND/ ADJUSTED	LEGEND	PANEL TOTALS	KVA	AMPS
C	98.53 kVA	125%	123.17 kVA	C = CONTINUOUS		KVA	AMPS
N	152.4 kVA	100%	152.4 kVA	K = KITCHEN	TOTAL CONNECTED LOAD:	248 kVA	298.3 A
				L = LIGHTING	TOTAL DEMAND LOAD:	272.22 kVA	327.4 A
				M=MOTOR	SPARE CAPACITY :		
				MOTOR = LARGEST MOTOR	**REQUIRED CAPACITY:**	**272.22 kVA**	**327 A**
				N = NON-CONTINUOUS			
				R = RECEPTACLE			

SWITCHBOARD- (E) DP-HMA (SECTION 2)

VOLTAGE: 480Y/277V, 3PH, 4W | INTEGRAL SPD: No
MOUNTING: PAD | NEMA RATING: | POWER SOURCE TYPE: NORMAL
MAIN AMPS/ TYPE: 350 A/ | AIC RATING: | LOCATION: MECH-ELEC 0206
BUS AMPS: 400 A | SUPPLY FROM: DP-HMA (SECTION 1)

CKT	CIRCUIT DESCRIPTION	NO.of POLES	LOAD TYPE	FRAME SIZE	TRIP RATING	FEEDER TAG	A	B	C	REMARKS
1	(E) REVERB CURTAIN 3	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
2	(E) SIDE BANNER RIGHT 2	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
3	(E) REVERB CURTAIN 4	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
4	(E) SIDE BANNER RIGHT 3	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
5	(E) REVERB CURTAIN 5	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
6	(E) SIDE BANNER RIGHT 4	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
7	(E) REVERB CURTAIN 6	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
8	(E) SIDE BANNER LEFT 1	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
9	(E) REVERB CURTAIN 7	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
10	(E) SIDE BANNER LEFT 2	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
11	(E) REVERB CURTAIN 8	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
12	(E) SIDE BANNER LEFT 3	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
13	(E) REVERB CURTAIN 9	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
14	(E) SIDE BANNER LEFT 4	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
15	(E) SIDE BANNER RIGHT 1	3	N	15 A	15 A		2.47 kVA	2.47 kVA	2.47 kVA	
16	(E) SPACE	3	--	--	--	--	--	--	--	
17	(E) SPACE	3	--	--	--	--	--	--	--	
18	(E) SPACE	3	--	--	--	--	--	--	--	
19	(E) SPACE	3	--	--	--	--	--	--	--	
20	(E) SPACE	3	--	--	--	--	--	--	--	
SPECIAL SWITCHBOARD FEATURES:					Total Connected Load:		37 kVA	37 kVA	37 kVA	
					Total Connected Amps:		133.6 A	133.6 A	133.6 A	

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND/ ADJUSTED	LEGEND	PANEL TOTALS	KVA	AMPS
N	111 kVA	100%	111 kVA	C = CONTINUOUS		KVA	AMPS
				K = KITCHEN	TOTAL CONNECTED LOAD:	111 kVA	133.5 A
				L = LIGHTING	TOTAL DEMAND LOAD:	111 kVA	133.5 A
				M=MOTOR	SPARE CAPACITY :		
				MOTOR = LARGEST MOTOR	**REQUIRED CAPACITY:**	**111 kVA**	**134 A**
				N = NON-CONTINUOUS			
				R = RECEPTACLE			

SWITCHBOARD- (E) DP-HMB

VOLTAGE: 480Y/277V, 3PH, 4W | INTEGRAL SPD: No
MOUNTING: PAD | NEMA RATING: | POWER SOURCE TYPE: NORMAL
MAIN AMPS/ TYPE: 350 A/ | AIC RATING: | LOCATION: MECH-ELEC 0111
BUS AMPS: 400 A | SUPPLY FROM: SWBD-MS

CKT	CIRCUIT DESCRIPTION	NO.of POLES	LOAD TYPE	FRAME SIZE	TRIP RATING	FEEDER TAG	A	B	C	REMARKS
1	(NB) VAV-5	3	N	20 A	20 A		3.33 kVA	3.33 kVA	3.33 kVA	
2	(NB) VAV-6	3	N	20 A	20 A		3.33 kVA	3.33 kVA	3.33 kVA	
3	(NB) VAV-7	3	N	20 A	20 A		3.33 kVA	3.33 kVA	3.33 kVA	
4	(NB) VAV-8	3	N	20 A	20 A		4.33 kVA	4.33 kVA	4.33 kVA	
5	(NB) VAV-9	3	N	20 A	20 A		4.33 kVA	4.33 kVA	4.33 kVA	
6	(NB) VAV-10	3	N	20 A	20 A		4 kVA	4 kVA	4 kVA	
7	(E) EF-1	3	M	15 A	15 A		0.39 kVA	0.39 kVA	0.39 kVA	
8	SPACE	1	--	--	--	--	--			
9	(E) EF-2	3	M	15 A	15 A		0.39 kVA	0.39 kVA	0.39 kVA	
10	(NB) VAV-4	3	N	20 A	20 A		3.33 kVA	3.33 kVA	3.33 kVA	
11	(E) EF-3	3	M	15 A	15 A		0.39 kVA	0.39 kVA	0.39 kVA	
12	(E) SPARE	3	--	15 A	15 A	--	0 kVA	0 kVA	0 kVA	
13	(D) SPARE	3	--	20 A	20 A	--	0 kVA	0 kVA	0 kVA	
14	(E) SPARE	3	--	15 A	15 A	--	0 kVA	0 kVA	0 kVA	
15	(D) SPARE	3	--	20 A	20 A	--	0 kVA	0 kVA	0 kVA	
16	(E) SPARE	3	--	15 A	15 A	--	0 kVA	0 kVA	0 kVA	
17	(NL) VAV-3	3	N	20 A	20 A		1.83 kVA	1.83 kVA	1.83 kVA	
18	(D)(NB) CU-2	3	C	80 A	80 A		15.45 kVA	15.45 kVA	15.45 kVA	
19	(D)(NB) SF-3	3	C	20 A	20 A		4.05 kVA	4.05 kVA	4.05 kVA	
20	(D)(NB) SF-1	3	C	25 A	25 A		4.82 kVA	4.82 kVA	4.82 kVA	
21	(E) SF-5	3	C	60 A	60 A		3.33 kVA	3.33 kVA	3.33 kVA	
22	(D)(NB) SF-2	3	C	50 A	50 A		7.65 kVA	7.65 kVA	7.65 kVA	
23	(D)(NB) CU-1	3	C	60 A	60 A		10.42 kVA	10.42 kVA	10.42 kVA	
24	(D)(NB) CU-3	3	C	35 A	35 A		5.99 kVA	5.99 kVA	5.99 kVA	
SPECIAL SWITCHBOARD FEATURES:					Total Connected Load:		79.85 kVA	79.85 kVA	79.85 kVA	
					Total Connected Amps:		288.3 A	288.3 A	288.3 A	

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND/ ADJUSTED	LEGEND	PANEL TOTALS	KVA	AMPS
M	3.48 kVA	100%	3.48 kVA	C = CONTINUOUS		KVA	AMPS
C	153.24 kVA	125%	191.55 kVA	K = KITCHEN	TOTAL CONNECTED LOAD:	239.55 kVA	288.1 A
N	83.5 kVA	100%	83.5 kVA	L = LIGHTING	TOTAL DEMAND LOAD:	277.86 kVA	334.2 A
				M=MOTOR	SPARE CAPACITY :		
				MOTOR = LARGEST MOTOR	**REQUIRED CAPACITY:**	**277.86 kVA**	**334 A**
				N = NON-CONTINUOUS			
				R = RECEPTACLE			

PANEL: (E) HB

VOLTAGE: 480Y/277V, 3PH, 4W | NEMA RATING: Type 1
MOUNTING: SURFACE | INTEGRAL SPD: No
BUS RATING: 225 A | ISOL GROUND BAR: No
MAIN AMPS: 150 A MCB | FEED-THRU LUGS: No | LOCATION: MECH-ELEC 0137
AIC RATING: SEE EXISTING PANEL | DOUBLE-LUGS: No | SUPPLY FROM: SWBD-MS

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	--	1	(E) SPACE	--	--	--					--	(E) SPACE	1	--	2
3	--	1	(E) SPACE	--			--	--			--	(E) SPACE	1	--	4
5	--	1	(E) SPACE	--					--	--	--	(E) SPACE	1	--	6
7					4	3.83									8
9	20 A	3	(NB) VAV-12	N			4	3.83			N	(NB) VAV-13	3	20 A	10
11									4	3.83					12
13					2.66	2.66									14
15	20 A	3	(NB) EUH-1	N			2.66	2.66			N	(NB) EUH-2	3	20 A	16
17									2.66	2.66					18
19	--	1	(E) SPACE	--	--	--					--	(E) SPACE	1	--	20
21	20 A	1	(E) ???	L			2	2			L	(E) AV ROOM LIGHTS - EMERG. LIGHTS	1	20 A	22
23	20 A	1	(E) BAD BREAKER	--					0	2	L	(E) WALK LIGHTS & N. WALL WASH	1	20 A	24
25	20 A	1	(E) BAD BREAKER	--	0	2					L	(E) STAIR 1&SOUND RM LTS - DONT...	1	20 A	26
27	20 A	1	(E) RESTROOMS & COAT RM LTG	L			2	0			--	(E) SPARE	1	20 A	28
29	20 A	1	(E) SPARE	--					0	0	--	(E) SPARE	1	20 A	30
31	20 A	1	(E) SPARE	--	0	0					--	(E) SPARE	1	20 A	32
33	20 A	1	(E) SPARE	--			0	2			L	(E) N. LOBBY LIGHTS	1	20 A	34
35	20 A	1	(E) ???	--					0	--	--	(E) SPACE	1	--	36
37				L; R;	20.5	3.32									38
39	70 A	3	(E) PANEL LB (VIA XFR)	K; N;			17.37	3.32			N	(E) ELECTRIC WATER HEATER	3	20 A	40
41				Spare					20.25	3.32					42
SPECIAL PANEL FEATURES					37.19 kVA		40 kVA		36.95 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD	LOAD TYPE KEY	PANEL TOTALS	KVA	AMPS
K	1 kVA	100%	1 kVA	C = CONTINUOUS		KVA	AMPS
L	23.54 kVA	125%	29.43 kVA	E = ELEVATOR	TOTAL CONNECTED LOAD:	114.14 kVA	137.3 A
N	56.5 kVA	100%	56.5 kVA	K = KITCHEN	TOTAL DEMAND LOAD:	107.28 kVA	129 A
R	35.82 kVA	64%	22.91 kVA	L = LIGHTING	SPARE CAPACITY:	0%	0%
				M = MOTOR	**DESIGNED CAPACITY:**	**107.28 kVA**	**129 A**
				MOTOR = LARGEST MOTOR			
				N = NON-CONTINUOUS			
				R = RECEPTACLE			

PANEL: (E) HC

VOLTAGE: 480Y/277V, 3PH, 4W | NEMA RATING: Type 1
MOUNTING: SURFACE | INTEGRAL SPD: No
BUS RATING: 225 A | ISOL GROUND BAR: No
MAIN AMPS: 200 A MCB | FEED-THRU LUGS: No | LOCATION: MECH-ELEC 0111
AIC RATING: SEE PANEL | DOUBLE-LUGS: No | SUPPLY FROM: SWBD-MS

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	--	1	(E) SPACE	--	--	--					--	(E) SPACE	1	--	2
3	--	1	(E) SPACE	--			--	--			--	(E) SPACE	1	--	4
5	--	1	(E) SPACE	--					--	--	--	(E) SPACE	1	--	6
7	--	1	(E) SPACE	--	--	--					--	(E) SPACE	1	--	8
9	--	1	(E) SPACE	--			--	--			--	(E) SPACE	1	--	10
11	--	1	(E) SPACE	--					--	--	--	(E) SPACE	1	--	12
13					2.33	4									14
15	20 A	3	(NB) VAV-1,2	N			2.33	4			N	(NB) VAV-11	3	20 A	16
17									2.33	4					18
19	20 A	1	(E) SOUTH HALLS & LOBBY LIGHTS	L	3	0					--	(E) SPARE	1	20 A	20
21	20 A	1	(E) SOUTH HALLS & LOBBY EM LTG	L			3	0			--	(E) SPARE	1	20 A	22
23	20 A	1	(E) LECTURE HALL LIGHTS	L					3	3	L	(E) CONFERENCE 101-2-3 LIGHTS	1	20 A	24
25	20 A	1	(E) CONFERENCE 104 LTG	L	3	3					L	(E) PANTRY & STORE RM LTS	1	20 A	26
27	20 A	1	(E) CONFERENCE 105 LTG	L			3	0			--	(E) SPARE	1	20 A	28
29	20 A	1	(E) CONFERENCE 106 LTG	L					3	0	--	(E) SPARE	1	20 A	30
31					3.32	0					--	(E) SPARE	1	20 A	32
33	20 A	3	(E) WATER HEATER	N			3.32	0			--	(E) SPARE	1	20 A	34
35									3.32	0	--	(E) SPARE	1	20 A	36
37					10.8	14.46									38
39	70 A	3	(E) XFR-LK	K			10.8	11.16			L; R; Spare	(E) XFR-LC	3	70 A	40
41									10.8	12.24					42
SPECIAL PANEL FEATURES					42.82 kVA		36.55 kVA		40.61 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD	LOAD TYPE KEY	PANEL TOTALS	KVA	AMPS
K	32.4 kVA	100%	32.4 kVA	C = CONTINUOUS		KVA	AMPS
L	29.28 kVA	125%	36.6 kVA	E = ELEVATOR	TOTAL CONNECTED LOAD:	119.97 kVA	144.3 A
N	27.63 kVA	100%	27.63 kVA	K = KITCHEN	TOTAL DEMAND LOAD:	116.02 kVA	139.6 A
R	32.58 kVA	65%	21.29 kVA	L = LIGHTING	SPARE CAPACITY:	0%	0%
				M = MOTOR	**DESIGNED CAPACITY:**	**116.02 kVA**	**140 A**
				MOTOR = LARGEST MOTOR			
				N = NON-CONTINUOUS			
				R = RECEPTACLE			

PANEL: (E) LB

VOLTAGE: 208Y/120V, 3PH, 4W | NEMA RATING: Type 1
MOUNTING: SURFACE | INTEGRAL SPD: No
BUS RATING: 225 A | ISOL GROUND BAR: No
MAIN AMPS: 150 A MCB | FEED-THRU LUGS: No | LOCATION: MECH-ELEC 0137
AIC RATING: SEE PANEL | DOUBLE-LUGS: No | SUPPLY FROM: XFR-LB

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	(NL) N. TRACK LIGHTING	L	1.92	1.92					L	(NL) CENTER TRACK LIGHTING	1	20 A	2
3	20 A	1	(D) SPARE	--			0	0			--	(D) SPARE	1	20 A	4
5	20 A	1	(D) SPARE	--					0	0	--	(D) SPARE	1	20 A	6
7	20 A	1	(E) TIME CLOCK IN OFFICE	R	0.18	0.36					R	(E) STAIR 1 WATER COOLER	1	20 A	8
9	20 A	1	(E) VENDING MACHINE OUTLET	K			1	0.72			R	(E) OFFICE NE	1	20 A	10
11	20 A	1	(E) CONTROL TICKET BOOTH HEAT	N					1.44	1.08	R	(E) S. ALCOVE, SW AUDITOR. OUTLETS	1	20 A	12
13	20 A	1	(E) OFFICE OUTLETS	R	0.72	1.08					R	(E) N. ALCOVE, NW AUDITOR. OUTLETS	1	20 A	14
15	20 A	1	(E) OFFICE OUTLETS	R			0.72	1.44			R	(E) N. LOBBY OUTLETS, WOMENS ROOM	1	20 A	16
17	20 A	1	(E) RESTROOM OUTLETS	R					0.72	1.08	R	(E) TICKET BOOTH OUTLETS, ADA DOOR	1	20 A	18
19	20 A	1	(E) BALCONY N. OUTLETS	R	1.08	1.44					L	(E) SITE LIGHTS	1	20 A	20
21	20 A	1	(E) BALCONY S. OUTLETS	R			1.08	1.44			L	(E) SITE LIGHTS	1	20 A	22
23	20 A	1	(E) BALCONY S. RM OUTLETS	R					1.08	1.44	L	(E) SITE LIGHTS, YARD LIGHTS	1	20 A	24
25	20 A	1	(E) BALC SOUND PORCH OUTLETS	R	1.08	0.36					R	(E) AV ROOM OUTLETS	1	20 A	26
27	20 A	1	(E) BALCONY N. RM OUTLETS	R			1.08	0.36			R	(E) AV ROOM OUTLETS	1	20 A	28
29	20 A	1	(E) ROOF LIGHT, OUTLET AT STAIR	L					0.36	1.44	L	(E) ENTRY & STEP LIGHTS	1	20 A	30
31	20 A	1	(E) DOOR LOCK POWER	N	0.5	0.5					L	(E) TROPHY CASE/AV ROOM LIGHTS	1	20 A	32
33	20 A	1	(E) OUTSIDE LIGHTING CONTROL	L			0.36	0.72			L	(E) FRONT H.C. DOOR & LIGHTS	1	20 A	34
35	20 A	1	(E) N. AUTO DOOR OPENER	N					1	2.16	N	(E) BALCONY N. SPOT OUTLET	1	30 A	36
37					7.2	2.16					N	(E) BALCONY S. SPOT OUTLET	1	30 A	38
39	100 A	3	(E) SQUARE D R2D2 FEED	R			7.2	1.25			N	(E) BALCONY 220V OUTLET SPOT CENTER	2	20 A	40
41									7.2	1.25					42
SPECIAL PANEL FEATURES					20.5 kVA		17.37 kVA		20.25 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD	LOAD TYPE KEY	PANEL TOTALS	KVA	AMPS
K	1 kVA	100%	1 kVA	C = CONTINUOUS		KVA	AMPS
L	11.54 kVA	125%	14.43 kVA	E = ELEVATOR	TOTAL CONNECTED LOAD:	58.12 kVA	161.3 A
N	9.76 kVA	100%	9.76 kVA	K = KITCHEN	TOTAL DEMAND LOAD:	48.1 kVA	133.5 A
R	35.82 kVA	64%	22.91 kVA	L = LIGHTING	SPARE CAPACITY:	0%	0%
				M = MOTOR	**DESIGNED CAPACITY:**	**48.1 kVA**	**133 A**
				MOTOR = LARGEST MOTOR			
				N = NON-CONTINUOUS			
				R = RECEPTACLE			

PANEL: (E) LC

VOLTAGE: 208Y/120V, 3PH, 4W | NEMA RATING: Type 1
MOUNTING: SURFACE | INTEGRAL SPD: No
BUS RATING: 225 A | ISOL GROUND BAR: No
MAIN AMPS: 150 A MCB | FEED-THRU LUGS: No | LOCATION: MECH-ELEC 0111
AIC RATING: SEE PANEL | DOUBLE-LUGS: No | SUPPLY FROM: XFR-LC

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	(NL) SW TRACK LIGHTING	L	1.92	1.92					L	(NL) SE TRACK LIGHTING	1	20 A	2
3	20 A	1	(D) SPARE	--			0	0			--	(D) SPARE	1	20 A	4
5	20 A	1	(D) SPARE	--					0	0	--	(D) SPARE	1	20 A	6
7	20 A	1	(D) SPARE	--	0	0					--	(D) SPARE	1	20 A	8
9	20 A	1	(D) SPARE	--			0	0			--	(D) SPARE	1	20 A	10
11	20 A	1	(D) SPARE	--					0	1.44	L	(E) LECTURE HALL - LIGHT TRACK	1	20 A	12
13	20 A	1	(E) HUB OUTLET	R	0.18	0					--	(E) SPARE	1	20 A	14
15	20 A	1	(E) ROOF OUTLETS	R			1.44	1.44			R	(E) CONFERENCE 105 OUTLETS	1	20 A	16
17	20 A	1	(E) STORE ROOM OUTLETS	R					1.44	1.44	R	(E) CONFERENCE 106 OUTLETS	1	20 A	18
19	20 A	1	(E) CONFERENCE 101-102 OUTLETS	R	1.44	1.44					R	(E) CONFERENCE 106 OUTLETS	1	20 A	20
21	20 A	1	(E) CONFERENCE 103 OUTLETS	R			0.72	1.44			R	(E) RESTROOM 118 -119 OUTLETS	1	20 A	22
23	20 A	1	(E) MECH RM & CIRC. PUMP OUTLETS	R					0.72	1.44	R	(E) LECTURE HALL OUTLETS	1	20 A	24
25	20 A	1	(E) CONFERENCE 104 OUTLETS	R	1.44	1.44					R	(E) LECTURE HALL OUTLETS	1	20 A	26
27	20 A	1	(E) CONFERENCE 104 OUTLETS	R			1.44	1.44			R	(E) RM 115 UNDER RACK	1	20 A	28
29	20 A	1	(E) CONFERENCE 105 OUTLETS	R					1.44	1.44	R	(E) LECTURE HALL AV RM OUTLETS	1	20 A	30
31	20 A	1	(E) WELLS FARGO - SPEAKER...	R	0.36	1.44					R	(E) C&E AV BOOTH	1	20 A	32
33	20 A	1	(E) CONFERENCE 106 AV RM...	R			1.44	0.36			R	(NL) SW ROOF OUTLETS	1	20 A	34
35	20 A	1	(E) CONFERENCE 104 AV RM...	R					1.44	0	--	(D) SPARE	1	20 A	36
37	20 A	1	(E) CONFERENCE 105 AV RM...	R	1.44	1.44					R	(E) COMPRESSOR	1	30 A	38
39	30 A	1	(E) SPARE	--			0	1.44			R	(E) C&E AV BOOTH	1	20 A	40
41	30 A	1	(E) SPARE	--					0	1.44	R	SPARE?	1	20 A	42
SPECIAL PANEL FEATURES					14.46 kVA		11.16 kVA		12.24 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD	LOAD TYPE KEY	PANEL TOTALS	KVA	AMPS
L	5.28 kVA	125%	6.6 kVA	C = CONTINUOUS		KVA	AMPS
R	32.58 kVA	65%	21.29 kVA	E = ELEVATOR	TOTAL CONNECTED LOAD:	37.86 kVA	105.1 A
				K = KITCHEN	TOTAL DEMAND LOAD:	27.89 kVA	77.4 A
				L = LIGHTING	SPARE CAPACITY:	0%	0%
				M = MOTOR	**DESIGNED CAPACITY:**	**27.89 kVA**	**77 A**
				MOTOR = LARGEST MOTOR			
				N = NON-CONTINUOUS			
				R = RECEPTACLE			

GENERAL NOTES

A. EXISTING CIRCUIT DESCRIPTIONS ARE PER EXISTING LABELS AND/OR PANEL SCHEDULES LOCATED IN THE FIELD.

CIRCUIT NOTES

{D} EXISTING CIRCUIT BREAKER WITH AN EXISTING LOAD THAT WAS REMOVED IN THE DEMOLITION PHASE. REFER TO DEMOLITION DRAWINGS FOR AREAS OF ELECTRICAL DEMOLITION.

{E} EXISTING CIRCUIT TO REMAIN

{NL} NEW LOAD ON EXISTING CIRCUIT BREAKER

{NB} NEW CIRCUIT BREAKER WITH NEW LOAD. PROVIDE NEW BREAKER TO MATCH EXISTING PANEL TYPE AND AIC RATING.

bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
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15 82nd Dr, Suite10
Gladstone, OR 97027
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740 Almaden Street
Eugene, OR 97402
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#	REVISIONS	DATE

Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER
78483
OREGON
JUNE 2, 2017
NEIL B. LEONETTI

PERMIT SET

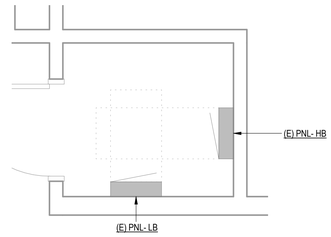
PANELBOARD SCHEDULES

E5.02

2/17/2022 1:39:38 PM

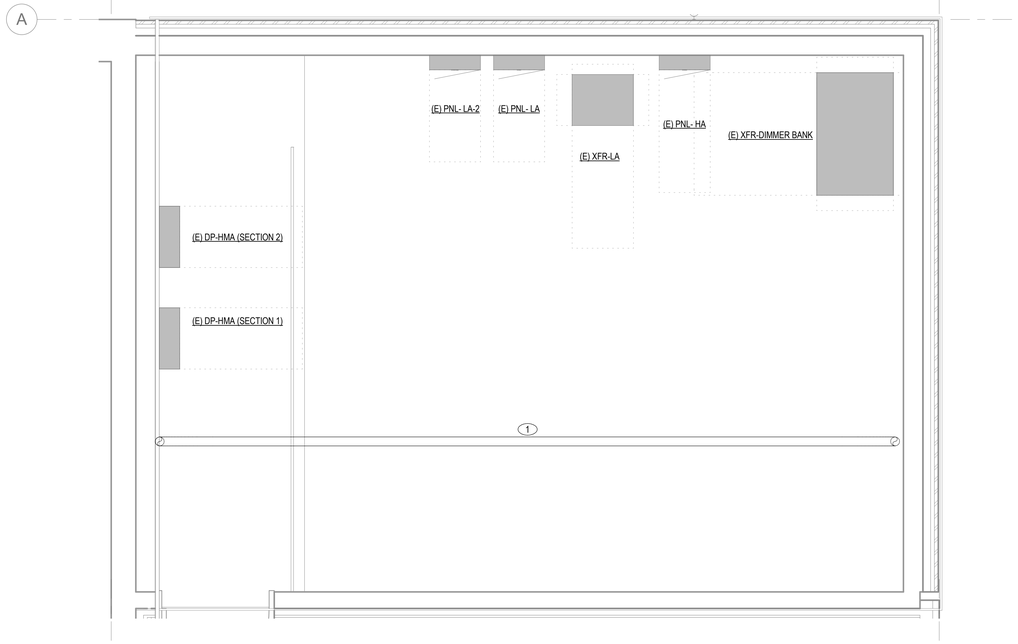
KEYED NOTES (#)

1. PROVIDE (1) 2" CONDUIT FROM SWBD-MS IN STORAGE ROOM 167 ON LEVEL 1 TO FUTURE PV PANEL ON ROOF OF ELECTRICAL ROOM 206. ROUTE CONDUIT THROUGH ELECTRICAL ROOM 206 TO REACH FUTURE PANEL LOCATION ON ROOF. CONTRACTOR TO COORDINATE EXACT LOCATION OF STUB WITH ARCHITECT PRIOR TO INSTALLATION.



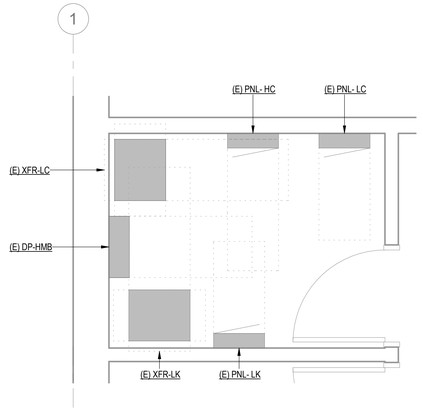
2 ENLARGED PLAN - UTILITY ROOM 137

SCALE: 1/2" = 1'-0"



3 ENLARGED PLAN - ELECTRICAL ROOM 206

SCALE: 1/2" = 1'-0"



1 ENLARGED PLAN - ELECTRICAL ROOM 111

SCALE: 1/2" = 1'-0"

bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ELECTRICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

ENVELOPE CONSULTANT
FORENSIC BUILDING CONSULTANTS
15 82nd Dr, Suite10
Gladstone, OR 97027
T (503) 772 1114

COST ESTIMATOR
CONSTRUCTION FOCUS INC.
740 Almaden Street
Eugene, OR 97402
T (541) 686 2031

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#	REVISIONS	DATE

Oregon State University

LSC Mech & Roof Renewal

875 SW 26TH STREET
CORVALLIS, OR 97331

JOB NO: 2240-21
ISSUE DATE: 02/21/2022

Jurisdiction Stamp Area

EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER
78483
OREGON
JUNE 2, 2017
MATT B. LEONETTI

ENLARGED PLANS

E6.01

PERMIT SET

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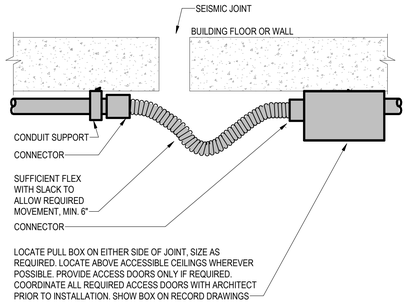
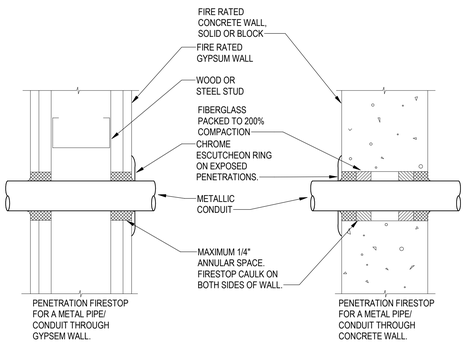


NOTES:

A. TYPICAL FOR CONDUITS CROSSING BUILDING SEISMIC AND EXPANSION JOINTS.
B. NOT SHOWN ON ELECTRICAL PLANS. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF SEISMIC/EXPANSION JOINTS.
C. VERIFY POTENTIAL RANGE OF MOVEMENT WITH ARCHITECT & STRUCTURAL ENGINEER.

9 CONDUIT CROSSING SEISMIC EXPANSION JOINT

SCALE: NONE

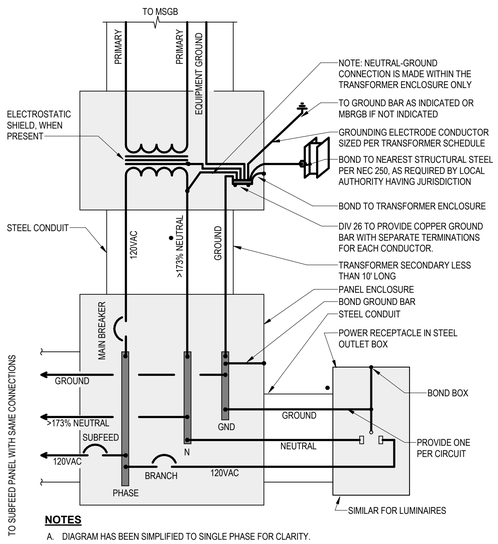


NOTES:

A. INSTALL FIRE STOP SYSTEMS IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE RATED WALLS AND FLOORS.
C. VERIFY UL APPROVED DETAIL REQUIRED FOR EACH CONDITION WITH ARCHITECT. SUBMIT FOR APPROVAL COPY OF DETAIL TO BE USED, PRIOR TO INSTALLATION.

8 FIRE RATED WALL CONDUIT PENETRATION

SCALE: NONE



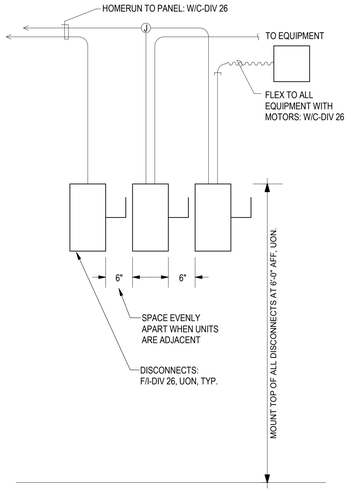
NOTES

A. DIAGRAM HAS BEEN SIMPLIFIED TO SINGLE PHASE FOR CLARITY.
B. NON-K-RATED (K-1) TRANSFORMER WIRING IS THE SAME EXCEPT NEUTRAL (GROUNDED SECONDARY CONDUCTOR) IS NOT OVERSIZED.

TRANSFORMER/PANEL/OUTLET/LUMINAIRE WIRING (NON ISOLATED GROUND PANELS)

7

SCALE: NONE

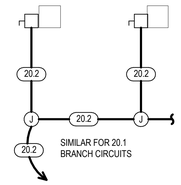


NOTE:

THIS DETAIL IS GENERIC. REFER TO FLOOR PLANS FOR ACTUAL INSTALLATION REQUIREMENTS.

6 DISCONNECT INSTALLATION

SCALE: NONE



NOTES

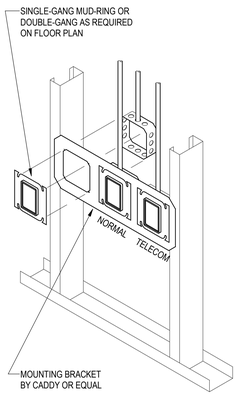
A. THIS DETAIL APPLIES TO SMALL 120V AND 208V, SINGLE-PHASE, HVAC EQUIPMENT LOADS (<6A EACH), IN INTERIOR LOCATIONS ONLY, THAT ARE EITHER CONNECTED TO A 20A DEDICATED CIRCUIT OR WHERE MULTIPLE UNITS ARE CONNECTED TO THE SAME 20A CIRCUIT. COMPLY WITH NEC 430.24 & 430.53 FOR MULTIMOTOR APPLICATION.

B. PROVIDE FUSED DISCONNECT AT EACH PIECE OF EQUIPMENT: LITTLEFUSE LSSY (120V) AND LSTY (208V,1-PH) FUSE SWITCH DEVICE OR EQUAL.

SMALL VRFBS/VRF/FPB/VAV/ FCU WIRING INSTALLATION

5

SCALE: NONE

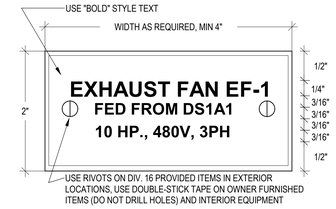


NOTE:

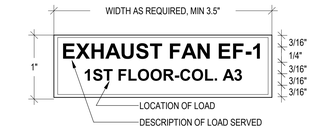
THIS DETAIL APPLIES FOR ALL SITUATIONS WHERE TWO OR MORE POWER AND TELECOM DEVICES ARE SHOWN ON THE DRAWINGS, UON.

4 POWER/TELECOM DEVICE BOX INSTALLATION

SCALE: NONE



GENERAL EQUIPMENT



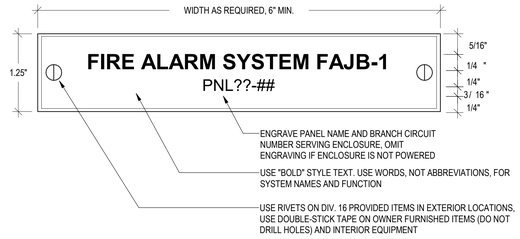
CIRCUIT BREAKERS IN DIST. PANELS

NOTES:

1. SEE DRAWINGS FOR ADDITIONAL NAMEPLATE INFORMATION AND COLORS OF NAMEPLATES FOR DIFFERENT SYSTEMS.
2. TEXT SHOWN ABOVE IS FOR EXAMPLE ONLY. MODIFY TEXT AS REQUIRED TO MATCH EQUIPMENT SPECIFICATIONS.
3. CENTER ALL TEXT HORIZONTALLY

3 EQUIPMENT IDENTIFICATION NAMEPLATES

SCALE: NONE

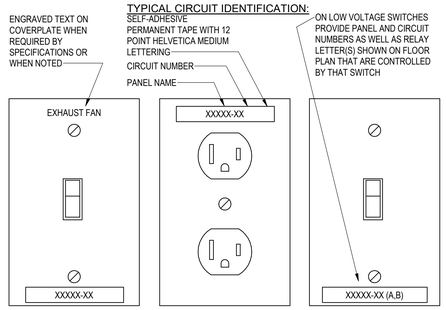


NOTES

A. REFER TO SPECIFIACTIONS FOR FOR ADDITIONAL INFORMATION AND COLORS FOR DIFFERENT SYSTEMS.
B. PROVIDE ONE NAMEPLATE FOR EACH ENCLOSURE OR J-BOX LARGER THAN 4"
C. CENTER ALL TEXT HORIZONTALLY AND VERTICALLY IF ONLY ONE LINE.
D. TEXT SHOWN ABOVE IS FOR EXAMPLE ONLY. MODIFY TEXT AS REQUIRED TO MATCH EQUIPMENT SPECIFICATIONS.

2 ENCLOSURE INDENTIFICATION NAMEPLATES

SCALE: NONE



SPECIALTY DEVICE OR SWITCH | **RECEPTACLES** | **LIGHT SWITCHES**

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND COLORS OF TAPE REQUIRED FOR DIFFERENT SYSTEMS.
2. TEXT SHOWN ABOVE IS FOR EXAMPLE ONLY. MODIFY TEXT AS REQUIRED TO MATCH INSTALLATION.
3. LABEL DEVICES IN SURFACE METAL RACEWAYS, POWER POLES, FLOOR BOXES, CONCEALED MULTI-SERVICE POWER BOXES, ETC. SIMILARLY.
4. WHERE MULTIPLE SWITCHES ARE GROUPED UNDER COMMON COVERPLATE AND ARE SERVED FROM SAME CIRCUIT, PROVIDE ONLY ONE LABEL FOR MIDDLE SWITCH. PROVIDE MULTIPLE LABELS IF DIFFERENT CIRCUITS ARE USED.
5. LABELS ARE NOT REQUIRED FOR DEVICES IN APARTMENTS AND CONDOS.

1 DEVICE & SWITCH LABELING

SCALE: NONE

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bassetti architects

71 Columbia Street, Suite 500
Seattle, Washington 98104
T (206) 340 9500
www.bassettiarch.com

STRUCTURAL ENGINEER
KPFF
111 SW 5th Ave, Suite 2600
Portland, OR 97204
T (503) 227 3251

MECHANICAL ENGINEER
GLUMAC
900 SW 5th Ave, Suite 1600
Portland, OR 97204
T (503) 227 5280

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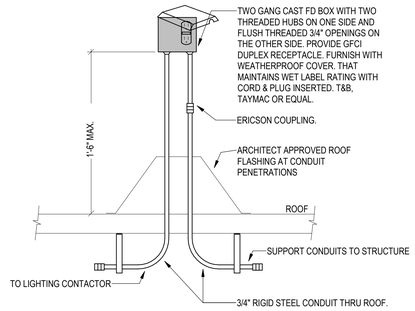
REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 8, 2014
PAUL B. LEONETTI

PERMIT SET

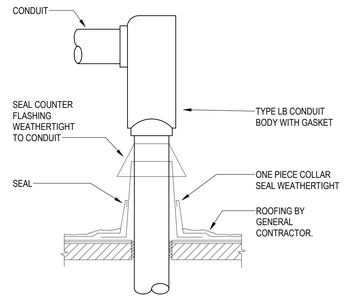
ELECTRICAL DETAILS

E9.01



3 ROOF MOUNTED RECEPTACLE

SCALE: NONE



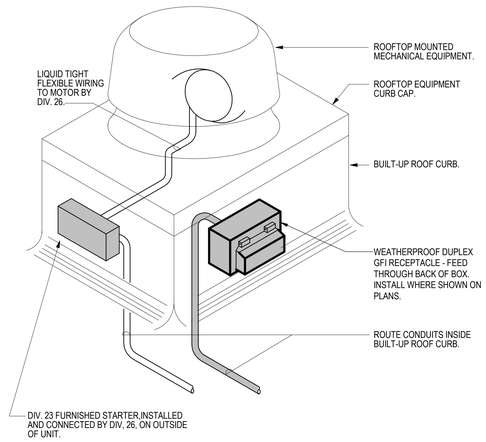
NOTES

A. ELECTRICAL CONTRACTOR TO PROVIDE ARCHITECT/ROOFING CONTRACTOR APPROVED CONDUIT COLLAR AND FLASHING.

B. USE THIS DETAIL ONLY WHERE REQUIRED. STUB-UP THROUGH MECHANICAL EQUIPMENT ROOF CURBS WHEREVER POSSIBLE.

2 CONDUIT ROOF PENETRATION

SCALE: NONE



1 ROOFTOP HVAC DETAIL

SCALE: NONE

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REGISTERED PROFESSIONAL ENGINEER
OREGON
78483
JUNE 2, 2011
PAUL B LEONETTI

ELECTRICAL DETAILS

E9.02

PERMIT SET